



ready or not

**A Teacher's Resource for
Career Education
and *r u ready?*
*Navigating the Waterways***

Commonwealth of Virginia
Virginia Department of Education
7th edition, 2011

ready or not

a Teacher's Resource for
r u ready? and Career Education

Developed by

Career Connections
and the
CTE Resource Center

for

Office of Career and Technical Education Services
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Introduction

Education, particularly secondary education, lays the foundation for preparing students for their transition to adult roles as citizens, parents, and members of the workforce. Frequently, career options are unfamiliar waters for students considering life after high school. They may not recognize the relationship of continuing education programs to career interests and employability skills. Students are likely to need help in understanding the process of career choice or in recognizing the need to be a manager of one's own career within the ever-changing workplace. Happiness at work is often a direct result of making wise decisions about a career choice. Whether such decisions are reached by meticulously charting potential career paths or by the usual trial-and-error process of "career hopping," all students, including special-needs youth, require instruction to prepare them to enter and advance in their chosen careers.

ready or not is a companion piece and implementation plan for *r u ready?*, the career guide developed by *Virginia Business* magazine in cooperation with the Virginia Department of Education. Both of these publications shed light on the nature of career development and encourage students to participate in activities that provide insight into this critical decision-making time of their lives. The major concept is that life continues after high school...whether students are ready or not. They can get ready through an action plan that is the result of guided career study and exploration, or they can let their life and career just happen.

ready or not provides a flexible plan for using the national and state career classification system. Emphasis is placed on identifying personal strengths and relating these to statewide career opportunities and requirements. This teaching plan helps students adapt to a different, and often difficult, world of work. The relationships between academic and career/technical competencies are underscored, particularly in connection with the Virginia Standards of Learning. Both *r u ready?* and *ready or not* prepare students for career highs and lows as these occur in the ebb and flow of the workplace and of individual lives.

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How to Use This Teaching Plan

ready or not is an implementation tool for teaching the magazine-formatted guide *r u ready?* at the middle and/or high school level. The *r u ready?* guide and *ready or not* teaching plan may be taught or coordinated by a school counselor or an academic or career/technical teacher. The intent is for the local program administrator to work with business and industry organizations and individuals who represent specific career fields in presenting this information.

The primary purposes of *r u ready?* are to present the career classification system, to apply this system to the many career opportunities in Virginia, and to help teachers guide students through the decision-making process of planning a career. In addition, the document contains helpful information on topics such as the job market, job-search skills, and postsecondary education. The Virginia Department of Education has distributed *r u ready?* to every 10th grader in Virginia's public high schools. It is important to coordinate presentation of *r u ready?* and *ready or not* throughout the instructional period.

ready or not contains three major sections. Section I, "Deciding on My Destination," includes objectives, process questions, and activities. In Section I, students learn the process of career choice and conduct a self-inventory of interests, aptitudes, and skills.

In Section II, "Exploring Career Clusters," students explore in detail, selected career clusters related to their interests, aptitudes, and abilities. A career cluster is a way of grouping occupations having a common core of knowledge and skills. The career cluster approach provides convenient "containers" of career information to present to students as they explore opportunities in Virginia. Within each career cluster, students also learn about the related pathways. For example, the Hospitality and Tourism career cluster includes the pathways of Lodging; Recreation, Amusements, and Attractions; Restaurants and Food/Beverage Services; and Travel and Tourism. A pathway is a broad, flexible subdivision of a career cluster that is specific enough to provide real-life occupational context. Within each pathway, students explore occupations, such as general manager within the Lodging pathway of the Hospitality and Tourism career cluster. Each career cluster description has four subsections. The first subsection, entitled "Inside Track," provides a brief description of the essence of each of the 16 career clusters. The next two subsections briefly describe the major "Trends" and "Considerations" involved with each cluster. The last subsection, "Discussion Questions," offers teachers a chance to begin a dialogue with their students about the career clusters.

Section III, "Navigating toward My Future" features career exploration activities and a student checklist, The Next Step. The activities combine the use of Internet resources and the career analysis students have already completed. Students should refer to career cluster information from *r u ready?* and *ready or not*. Note: In preparation, teachers may wish to familiarize themselves with the five career and education Web sites in Section III.

Students should maintain all of their career work in a portfolio and complete the checklist entitled "The Next Step" on pages 69–70. All students enrolled in the unit or course should meet with a counselor, teacher, and/or person from the career field to discuss next steps toward a career—continuing exploration, work-based learning experiences, postsecondary education, and/or beginning employment in a pathway.

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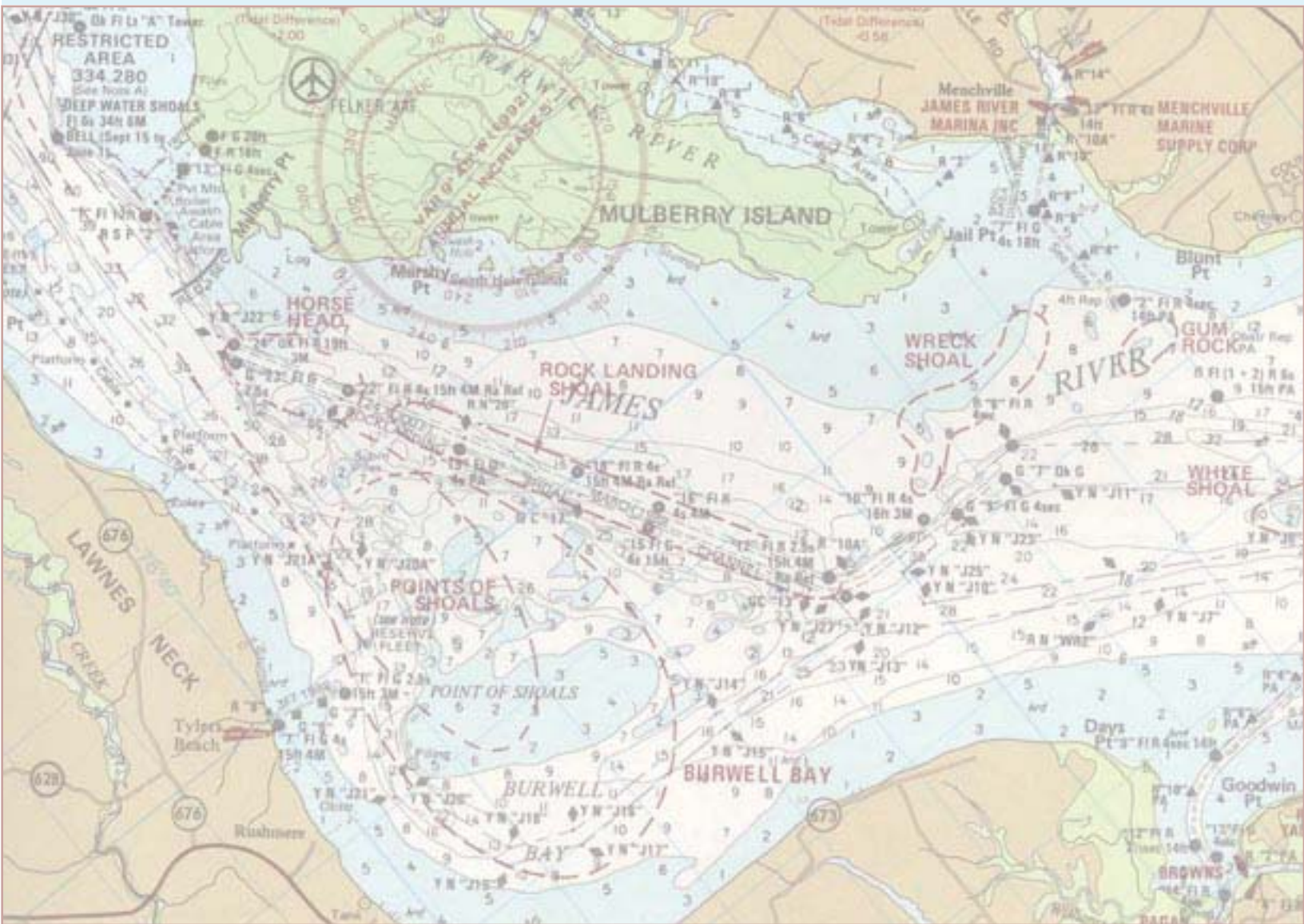
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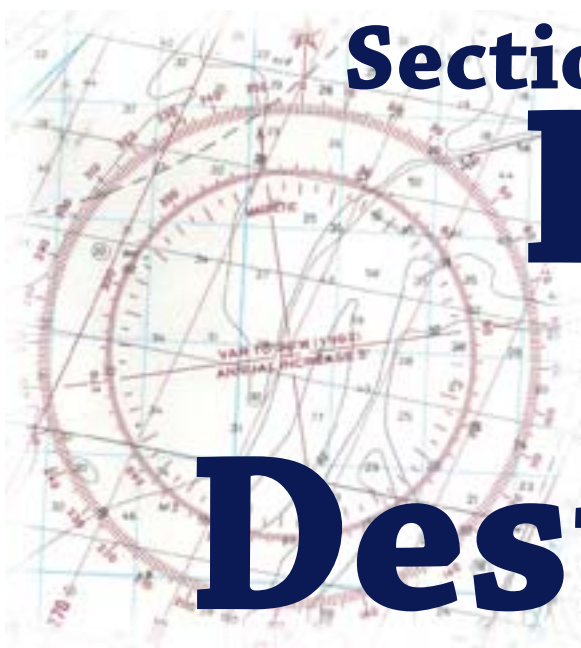
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Section I:

Deciding on my Destination



Finding the Who of You

Introduction

Consider developing a dialogue with students that goes something like the following: *Who are you? A lot of people have a hard time answering that—even people well into adulthood. Still, your first thoughts may revolve around being a son or a daughter, a friend, an artist, an environmentalist, an animal lover, someone who loves to build things or who loves the sound of a car engine. Think a little deeper. What kind of child or friend are you? Do you think of yourself as a good communicator, a problem solver? How do you feel when you are hiking, acting in a play, or fixing your car or truck? How do you feel when months have gone by and you haven't played your guitar? Can you work in an unorganized setting? Do you study best with some noise, or must you have a quiet place? What does all of this have to do with your career? And what about any significant personal or health problems you need to resolve before you can clearly focus on your plans? Before you can find a career you love, you must understand the who of you. That will mean being honest about who you are and what you value.*

To frame the context of self-understanding in terms of a career:

- Explain what is meant by a career.
- Analyze the value of work.
- Identify career education within the school curriculum, in extracurricular activities, at home, in the community, and through volunteerism.
- Analyze the concept of a career as a personal choice.

Even if you already have a career in mind, it is wise to reexamine your personal values at this critical crossroad and make use of the most current resources available.

Objectives

1. Explain what is meant by a career.

Explanation should include different aspects of a career, such as

- a blend of curiosity, passions, dreams, and strengths
- a progression of related jobs or work experiences that encompasses employment, continuing education, training, and personal growth
- an expression of lifestyle and personality
- a responsibility to family, community, and society
- a goal or aspiration.

Process Questions

Can a career just happen, or do you have to plan it?

What are the advantages and disadvantages of career planning?

As a student, when should you start planning your career?

What are some reasons that people change careers?

What might a change of career entail?

What are some of the consequences of not planning a career?

Notes

2. Analyze the value of work.

Analysis should include

- definitions of *work* and *job*
- intrinsic benefits of work
- extrinsic benefits of work.

Work: the physical or mental effort or activity directed toward the production or accomplishment of an objective. Work means different things to different people; one person's work is another's play.

Job: A specific situation in which a person performs particular tasks or duties (work) for compensation. A person is employed to work at a specific job.

Process Questions

Aside from income, what can a job provide?

What do you know about the kinds of health insurance and ways to attain it?

What is the difference between a job and a career?

How would you describe a good job? A bad job?

3. Identify career education within the school curriculum, in extracurricular activities, at home, in the community, and through volunteerism.

Identification should include personal examples of direct and indirect career education occurring in each of the five settings:

- school curriculum
- extracurricular activities
- home
- community
- volunteerism

Process Questions

What are some examples of commonly available sources through which you may learn more about careers?

What various activities and interests would you like to explore, and why?

Why do you think career education is often not emphasized

in the academic education setting? Would you like to see that change? Explain.

What are examples of service/volunteer positions?

4. Analyze the concept of a career as a personal choice.

Analysis should involve each student taking the initiative to understand his or her personality/character traits. Some means for self-analysis are

- introspection (journals, time spent within nature may help)
- personal value inventory
- peer interaction
- personality assessment
- consultation with parent/guardian
- consultation with teachers/counselors.

Process Questions

How important is understanding your personality when making career decisions?

What is the most important source of advice and information for you: family, friends, religious/spiritual advisor, media, or school? Other sources? Explain.

Why is it important to formulate your own decisions once you have considered advice from others?

What might be the consequences of allowing someone else to "make up your mind" for you?

How would you describe someone who loves their work vs. someone who does not have that passion? Talk about people you know or know of in each category.

Activities

Activity: How We See Ourselves, How Others See Us

Have students write down three nouns, three verbs, and three adjectives to describe themselves. Then have students pair up and write three nouns, three verbs, and three adjectives about their partners and compare both sets of lists. As a class, discuss the difference between how we perceive ourselves and how others perceive us.

Notes

Activity: The Good Stuff

Have students write a descriptive paragraph about their most positive abilities and traits. Then have students explain how they express these (e.g., through service, sports, extracurricular activities, art, or hobbies). Now have them list a number of jobs in which they might be rewarded for applying these abilities and traits. Teachers should emphasize the connection between personality and interests and the potential careers of their students. Develop a discussion about the distinct benefits of each person pursuing a career in which he or she uses his or her gifts and shares them with the world.

Activity: Learning Is Everywhere

Talk with students about what a career education means. Next, have students identify examples of career education occurring in their daily lives, either directly or indirectly. Have them list several events that have taught some potentially valuable career-building skills or lessons, then have an informal class discussion about their ideas.

Activity: Who Am I?

Have students complete an online personality self-assessment. Have students critique the assessment by

- gauging the accuracy of the assessment
- summarizing what they learned about themselves.

Suggested Resources for Self-Assessment

(Other resources may be used.)

The Keirseley Temperament Sorter II

www.keirseley.com/sorter/instruments2.aspx?partid=0

Virginia Education Wizard

www.vawizard.org

Activity: Matchmaker—You and a Career

Give each student two notecards. On one notecard, have students write the names of three careers that interest them. Give each student a copy of the handout, “Career Value Descriptions” (page 15). On the second notecard, have the students rank the 10 career values described on the handout (1 = highest/most important; 10 = lowest/least important).

Go around the room, and have each student read his or her list of job titles, and, as a group, assess the relationship between career interests and career value descriptions. In other words, have the class determine whether job titles and descriptions fit the value system of the individual being assessed. If not, what is compromised? Why? Why is it important to understand compromise? Talk about possible short-term and long-term consequences of such compromise. Have students share stories about people they know or have heard about whose compromises have affected them in negative and in positive ways.

Activity: Nontraditional Careers

Have students visit www.ctetrailblazers.org, click on Nontraditional Projects, then Resources: Which CTE Courses Are Nontraditional? Direct students to explore the nontraditional careers. Have students select one or more to research in the online *Occupational Outlook Handbook*: www.bls.gov/oco. Have a classroom discussion about what students discovered. Points to talk about: *Are students interested in a nontraditional career? Why or why not? Did they learn anything they did not know before?*

Notes

Handout: Career Value Descriptions

Security

Security is important for everyone. If you rank security highly, it means that you prefer an occupation that is stable, predictable, and has some permanence rather than one that is risky, changeable, and subject to seasonal demands. You prefer to work for a well-established company, quite possibly in areas that are basic to human needs and not likely to become obsolete. For example, hospitals, military service, and civil service are areas that have a degree of stability and an ongoing need for employees.

Personal Integrity

If you rank personal integrity highly, you will not be satisfied with any type of work that does not reflect your personal morals and ethics. You may narrow your career choices to ones with high ethical standards and ones in which you can take pride.

Recognition

If you rank recognition highly, you prefer occupations that put you in the spotlight. Status and recognition can come from a variety of sources, such as power, intelligence, money, or social usefulness. Keep in mind, however, that status and recognition depend on how well you do your job, not on job title alone. Being in a position of recognition may also make you vulnerable to criticism.

Adventure

If you rank adventure highly, then trying out new ideas and taking thought-out risks appeal to you, as do occupations requiring you to travel to other cities, states, and countries. You would not be satisfied with a job that requires a rigid schedule or strict deadlines.

Economic Reward

If you rank economic reward highly, your primary purpose for working is to make money. People with high economic reward values spend many hours on the job. Sometimes their hard work in the pursuit of making money results in their having limited time for family, friends, social activities, and hobbies.

Self-Expression

If you rank self-expression highly, you value creativity. You want a career that will enable you to put your own ideas to work. You like to make your own choices and decisions regarding how to perform your work. Artists, graphic designers, architects, writers, musicians, and actors share this value.

Help for Others and Environment

If helping others and the environment ranks highly, careers in teaching, medicine, social work, the clergy may appeal to you. Environmental careers can be found in most any field, such as agriculture, science, and writing. Some other pathways to consider are politics and protective services.

Relationships

If friendship and companionship rank highly, you will enjoy a job that involves working closely with others. Being part of a friendly and congenial work team appeals to you; working in isolation does not.

Leadership

If being in charge ranks highly, occupations that complement leadership skills may appeal to you. You prefer to plan and organize tasks for others to complete. You have no desire to take orders or to be assigned tasks. Entry-level leadership positions, though limited, can be found in many career fields. Be prepared to pursue higher education however, to develop your leadership skills.

Autonomy

If your freedom or independence ranks highly, you may enjoy entrepreneurial occupations. Free-lance artists, writers, tutors, and consultants pick their own working hours. Because they are independent workers, they can also pick and choose the company or individual(s) for whom they will work. However, independent workers do not receive company fringe benefits, such as sick pay, vacation time, life insurance, retirement, or hospitalization.

Introduction

This section encourages students to link what they know about their individual interests, values, and talents to career potential. Students will focus on the whole of *r u ready?* by

- reviewing *r u ready?*
- explaining the relationship between a career choice and “living within your means”
- identifying personal career education strategies.

“Looking at the Map” emphasizes decision-making skills, organizational strategies, and planning. By following the activities in this section, students should begin to narrow the field of opportunity.

Objectives

1. Review *r u ready?*.

Assign each student five articles to read in *r u ready?*, making sure every article below is assigned. There will naturally be overlaps. Have them write a few sentences that explain what each article is about. They may include what was of particular interest to them. As students follow along in their magazines, select one student to informally summarize each article. Allow for any discussion that arises.

- Letter from Governor McDonnell—p. 3
- Web Site Directory—pp. 4–5
- Take advantage of Web resources to start navigating the waterways—p. 6
- Start with your school counselor: Navigating the waters of college and career readiness—p. 8
- Career clusters help you sail your way to success—p. 9
- **Sixteen career clusters**
 - A. Agriculture, Food & Natural Resources—p. 10
 - B. Architecture & Construction—p. 12
 - C. Arts, A/V Technology & Communications—p. 14
 - D. Business Management & Administration—p. 16
 - E. Education & Training—p. 18
 - F. Finance—p. 20
 - G. Government & Public Administration—p. 24
 - H. Health Science—p. 26
 - I. Hospitality & Tourism—p. 30
 - J. Human Services—p. 32
 - K. Information Technology—p. 34
 - L. Law, Public Safety, Corrections & Security—p. 36
 - M. Manufacturing—p. 38
 - N. Marketing—p. 42
 - O. Science, Technology, Engineering & Mathematics—p. 44
 - P. Transportation, Distribution & Logistics—p. 46
- Cultivating his passion: Matt Lohr turns his passion for agriculture into a dream career—p. 11
- Greening the workplace—p. 13

- Choosing your path: Options during and after high school—p. 15
- Navigating rough seas: Determination is needed to find a job during a weak economy—p. 17
- Managing your money—pp. 21–22
- Above and beyond: Career and Technical Student Organizations enhance job skills—p. 23
- Earn while you learn: Apprenticeships provide on-the-job training—p. 25
- Virginia Colleges and Universities—pp. 28–29
- Job vs. career: choosing your destination—p. 31
- Entrepreneurship: Starting your own business allows you to create your own path—p. 33
- Stay one step ahead while in high school: Take Advantage of Tech Prep—p. 35
- Accomplishing it all: Use time-management skills to fulfill your commitments—p. 37
- Keeping your eye on the prize: Stay focused in high school to reach your goals—p. 39
- Career coaching: Why head off on the career journey alone?—p. 40
- The New Interview: Some colleges allow applicants to submit YouTube videos—p. 41
- Career colleges: getting the right amount of education—p. 43
- Governor’s academies promote STEM learning and careers—p. 45
- Don’t limit your options: Explore nontraditional careers—p. 47
- Discover your passions through work-based learning opportunities—p. 50
- Work-based learning through internships—p. 51
- Work-based learning through service/volunteer positions—p. 52
- Your résumé: An instant introduction—p. 53
- Making the right impression: Tips for interviewing—p. 54
- JROTC program introduces high-school students to the military—p. 55
- Finding ways to pay for the journey: The nuts and bolts of financial aid—pp. 56–57

Process Questions

When reading r u ready?, what new information did you learn?

What is the most interesting aspect of your career search? Why?

Can you describe some unique jobs?

After reading about work-based learning and entrepreneurship, would you consider any of these options? Explain.

How are you planning for the next phase of your life?

2. Explain the relationship between a career choice and living within your means as discussed in the article “Managing your money” pp. 21–22.

Process Questions

What is the relationship between integrity and living within your means?

What do you think it means to have “good financial habits”?

Have you ever developed a budget?

Do you think it is important to have a savings account? Why, or why not?

How can the advice in this article help you in the current economic climate?

3. Identify personal career education strategies after reading “Take advantage of Web resources to start navigating the waterways” and exploring the knowhowvirginia.org and vawizard.org Web sites.

Process Questions

Can you name ways in which you are currently working toward your future career?

Have you participated in or experienced any of the following? If so, please describe.

- *internship*
- *mentorship*

Notes

- *co-op education*
- *student organization*
- *part-time job*
- *study abroad*
- *service/volunteer work*
- *Tech Prep program*
- *job shadowing*
- *job fair*
- *media source concerned with the job market and employment*

Activities

Activity: Either/Or

Give students a list of “either/or” questions to help them understand their priorities. Begin with “Which is more important to you...

- working extra hours, even some evenings/weekends, to earn a large salary or having more personal time or time with your family?
- being a big fish in a small pond or a small fish in a big pond?
- achieving awards and recognition or doing exemplary work behind the scenes?
- having job security or the chance to quickly move up the career ladder?
- maintaining low stress at work or tackling difficult jobs?
- being a good leader or a good team player?
- being competitive or helping others achieve?
- working in the field or behind a desk?
- helping others or your business?
- having success now or success later?
- moving around or staying in one place?
- working for someone else or for yourself?
- having a steady income or the chance for larger amounts all at once?
- being good at many different tasks or an expert at one?

- mastering one area or seeking out new challenges?”

Note: Most of the above are not opposites. Prioritizing values is crucial when both options are desirable.

Have students rank each of their responses from most important to least. Before they begin, tell them not to think about any specific career they may already have in mind. Explain that this allows them to objectively decide what they value.

Activity: Recap

Group students, and have each group deliver an oral report to the class on one of the main topics from their *r u ready?* outline .

Activity: Classifieds

Have students search the employment want ads. Have them bring to class any ads for entry-level jobs that interest them. At least one of those ads should be for a job they might be qualified for after graduation from high school. Have students gather in pairs or small groups to talk about the reasons they selected the jobs and if/how the jobs reflect their priorities in the “Either/Or” activity. Follow up with an informal class discussion addressing the influence of priorities on job choice and vice versa.

Activity: The Clubs

Have students investigate the official student organizations and clubs at their school. Often, joining a club in a prospective field of interest can lead to networking and learning from professionals already working. Provide an opportunity for students to talk about organizations and clubs they belong to or would like to join, in relation to their field of work interest.

Notes

Activity: Career Day

Invite someone from the community who has an interesting job or career, and have him or her talk about the following:

- high school experience
- career education experience
- how he/she attained current position
- work and training experience
- description of current position
 - duties/responsibilities
 - concerns
 - opportunities
 - gratification derived
 - future plans

Allow students to ask the speaker questions. Have students discuss the topics that interested them.

Activity: Hitting Home

Have students interview a working adult, within their own family or community, addressing the same topics and criteria as the “Career Day” activity. This will allow each student more opportunity to delve into specific information about a career and how that career may affect his or her life. It may also help make the student aware of career resources existing within his or her family or community.

Note: As a safety measure, tell students to conduct the interview in a non-isolated setting (e.g., library, coffee shop) if interviewee is not a trusted family member or friend. Phone and e-mail interviews are a safe alternative.

Planning for the Adventure Ahead

Introduction

This section focuses on job-market information and emphasizes real-world concerns. Once students begin to identify their skills, values, and interests and gravitate toward a career cluster or pathway, there are a few practical concerns for them to consider before designing a particular career path. If the previous two sections inspire imagination, this section is about forming a plan to accomplish goals.

“Planning for the Adventure Ahead” encourages research on topics in the economic and industrial climate of the local region and the ways these factors can influence the job market. It also allows students to begin thinking about their target income and level of training and education. There are five objectives in this section, and students should consult them often when considering future occupations. Students should be taught

- to identify issues of economic instability
- to plan for economic hardship
- to analyze cost of living in relation to income
- to determine worker characteristics currently sought by employers
- to analyze aspects of hiring trends.

Objectives

1. Identify issues of economic instability.

Identification should include the main issues that have developed as a result of the economic downturn and the implications for your personal life.

Process Questions

How might a climate of economic uncertainty affect your educational goals, job search, medical insurance, and job/career?

What steps can you take to achieve a greater degree of economic stability?

What resources can help you retain economic stability?

What can you do if your finances spiral out of control? What are ways to cope and to get you and your life back in control?

Advice from Years Gone By

The Great Depression Era

Self-preservation was something that was instilled in Thelma Crump Wilson of New Kent, Virginia early on in life. Born in 1911, she spent her childhood in “Big Sky” country Montana where homesteaders had no choice but to be self-sufficient in every way. She was a young woman during the Great Depression of the 1930s. Her motivation was ingrained early on when you had to do what you could to survive. “You don’t blame others,” she said. “You don’t depend on others. You just get up and do. It’s not what happens to you; it’s how you let it affect you.” —“Portrait of a Pioneer” by Karen Mountcastle-Westermann

Notes

2. Plan for economic hardship.

Plan should include maintaining a savings account and a budget, learning how to use credit cards wisely, becoming frugal, and finding ways to be innovative, including bartering.

Process Questions

What is the ideal savings you should have in case of a job loss or reduction in wages?

How can you develop a budget?

In what ways can using credit cards create big problems?

How can you use credit cards to your benefit?

What are specific ways to save money?

How might you deal with your creditors when money is tight due to job loss or reduced wages?

What are the benefits of bartering?

Tips to Weather Economic Hardship

- Try to have a savings fund that will cover three to nine months of living expenses or at least \$1,000 in emergency cash.
- List essential expenses, and make a detailed budget every month.
- Develop the practice of saving some money each month, even if it is \$10.
- During the crisis phase, pay cash. However, keep at least one credit card for such things as developing a good credit score, using it for emergencies, and saving money for online deals.
- Do not buy anything costly, be it a car or a house, unless you are overflowing with excess cash.
- Wherever possible, use public transportation.
- Make a grocery list, and don't deviate. You'll save a bundle, and you'll also improve your health by no longer buying junk food and sweets. Don't grocery shop when hungry.
- Get rid of small expenses that add up.
- Reduce your phone bill by eliminating unnecessary features from your service.
- Bottom-line: Be smart and be prepared. There are

many more places you can squeeze dollars from things such as utility bills, big ticket purchases, and holiday shopping.

- If you are out of work or making reduced wages, contact creditors "in good faith" to let them know your situation and ask to set up a payment plan.
- Be innovative in finding ways to earn money. Put your skills to work. Learn how to barter.

Resources

"The Best Online Sites for Bartering."

planetgreen.com

www.planetgreen.discovery.com/tech-transport/online-bartering-websites-tips.html

Everything about Credit Cards blog

www.bestrateforcreditcards.com/blog/2009/02/why-everyone-should-own-at-least-one.html

Federal Reserve

www.federalreserve.gov

Jane Bryant Quinn: Personal finance columnist and author

authors.simonandschuster.com/Jane-Bryant-Quinn/9715

Jean Chatzky: Personal finance expert

www.jeanchatzky.com

Suze Orman: Personal finance expert

www.suzeorman.com

U.S. News & World Report: 7 Keys to Smart Bartering

www.usnews.com/money/personal-finance/articles/2008/06/10/7-keys-to-smart-bartering.html

Virginia Department of the Treasury

www.trs.virginia.gov

Notes

3. Analyze cost of living in relation to income.

Analysis should focus on current major factors that comprise “cost of living” in Virginia and the impact of these factors on a person’s ability to earn a living.

Process Questions

What is the relationship between salary/pay and consumer habits and goals?

What are some cost-of-living factors you can control?

What are some cost-of-living factors you cannot control?

What is meant by good credit rating, and what can it do for you? How can a bad credit rating hurt you?

What is debt? What is savings?

4. Determine worker characteristics currently sought by employers.

Identification should include strong work ethic, positive attitude, independence and initiative, self-presentation, flexibility, communication, and continuing education.

Process Questions

What actions and behaviors demonstrate a strong work ethic?

What does having a positive attitude mean in terms of work behavior?

How do you demonstrate independence and initiative at work?

What is the relationship between self-image and self-presentation skills?

What is meant by flexibility in the workplace?

How do you acquire and demonstrate effective communication skills?

What are some forms of continuing education?

Why do employers seek out employees with the characteristics named above?

Why are interviews just as beneficial for the applicant as they are for the employer?

What are some shortcomings of the interview process?

5. Analyze aspects of hiring trends.

Analysis should address the major factors in the job market, such as

- economy
- political climate
- geographical location
- consumer trends
- salary
- benefits
- openings/closings
- job security
- job longevity
- training/education
- technology trends.

Process Questions

What are the major trends influencing business and industry today?

What is the value of a college degree today, aside from additional training?

Of the job-market factors in the bulleted list above, which are the ones you can control and which are the ones you cannot? Why or why not?

What is the World Trade Organization (WTO), and why are its meetings commonly protested?

What are the world’s most powerful economic markets?

What countries have been bailed out? What are the effects of bailouts on companies and banks? [EDIT this esp!]

Why is it in government’s interest to educate its citizens?

How do immigration and naturalization policies affect the labor pool?

Activities

Activity: Cost of Living

Have students compose a list of “cost-of-living” items (e.g., cost of a gallon of milk, a dinner at a restaurant, a pair of dress shoes, tuition at a four-year college, tuition at a two-year community college, car payment and insurance, rent, mortgage payment and insurance, health insurance, income tax percentage, social

security percentage, and others). Divide the items among class members, and have them find the cost of each item 10 years ago and at present.

Note: In most cases, items should be specific (i.e., not just a car payment, but an average payment on a new Honda Civic or a Ford Escape Hybrid for example). To estimate payments, the students must take into account loans and interest rates.

Resources

Car Loan Calculator

www.calculator-loan.info/car-loan-calculator.php

Consumer Price Index (Bureau of Labor Statistics)

www.bls.gov/cpi

Federal Consumer Information Center

www.pueblo.gsa.gov

Inflation Conversion Factors for Dollars 1774 to Estimated 2020 (Robert Sahr, Oregon State University)

www.oregonstate.edu/cla/polisci/sahr/sahr

Mortgage and Real Estate Calculators

www.realestateabc.com/calculator/html?art=bc_financial

Activity: Profile of Success

Have the class select several job titles and describe the personality traits associated with the workers who hold these jobs. Sample job titles might include, but certainly are not limited to

- firefighter
- landscape architect
- brick/stone mason
- registered nurse
- pharmacy technician
- veterinary technician
- biomedical equipment technician
- paralegal
- architectural drafter
- graphic designer

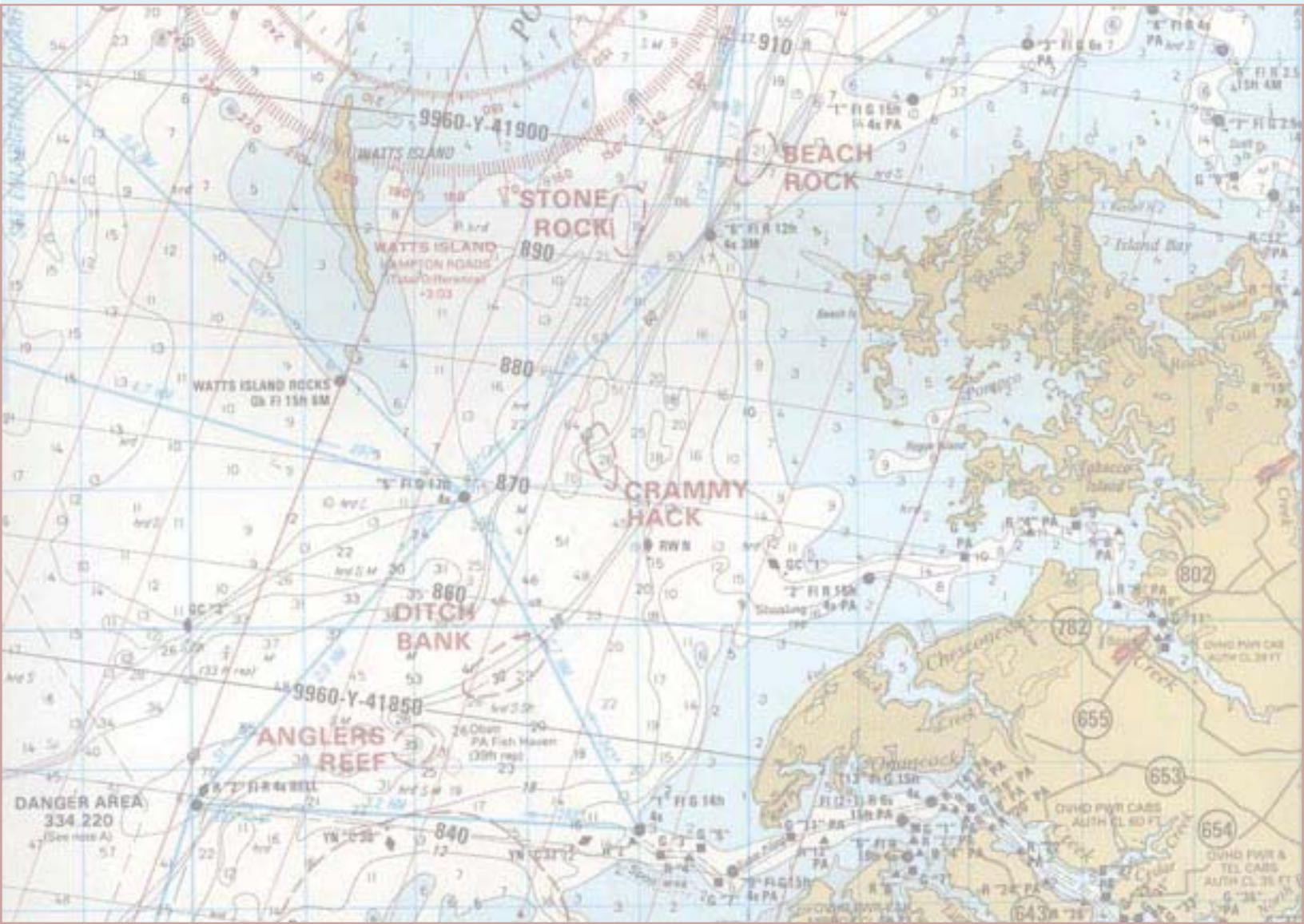
- soil and water conservationist
- electrician
- computer system analyst.

Reinforce the connection between personality and job skills by explaining that when members of the workforce have jobs that reflect their personality traits and values, they are more likely to keep those jobs and become successful.

Activity: Mock Job Interview

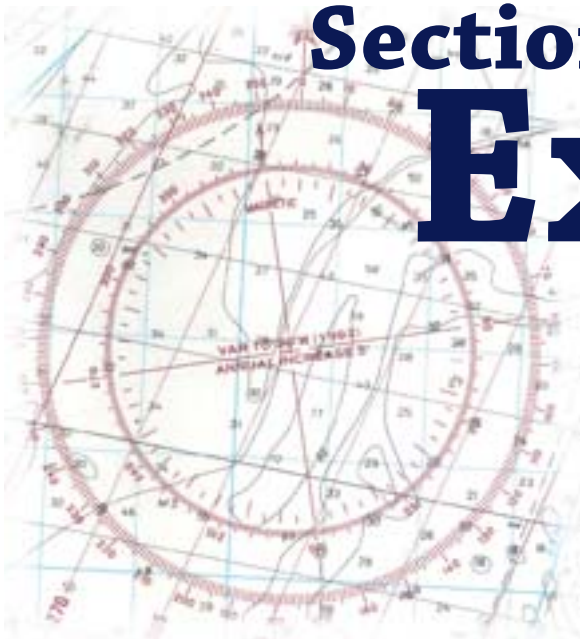
Select a panel of students to conduct a mock interview of job applicants. Decide on the company and the company vision, and have the panel members form a list of questions for the applicants. Choose several students to interview for the job. Lead the class in a critique of the interview process, and form a list of *do's* and *don'ts*. To conclude the exercise, have the panel choose one of the applicants for the position. Have the class critique the panel's decision and decide if the best applicant was chosen.

Notes



Section II:

Exploring Career Clusters



How to Use This Section

Objectives

The 16 Virginia career clusters reflect those defined by the United States Department of Education. Career clusters were created as a means of grouping occupations that have a core of common knowledge and skills, thus making it easier for students to see the connections among diverse occupations within the cluster. And by understanding relationships that exist among occupations, students may broaden their interests and discover alternative career pathways. Most importantly, using the career clusters, students can begin to narrow their focus from a general level to a more specific job title search.

Description of Elements

Each career cluster summary in *ready or not* contains four main elements. “Inside Track” introduces the career cluster and describes the personality types of those who normally fill the jobs associated with the cluster. “Trends” predicts opportunity growth or decline in each cluster so that students may realistically judge the level of competition for jobs and the potential market value of those jobs. “Considerations” contains critical information about basic working conditions and ethical concerns associated with employment in the career cluster. “Discussion Questions” presents thought-provoking queries that encourage students to analyze issues associated with each career cluster. Teachers may use these questions to help students begin a more in-depth examination of the career cluster at hand. In addition, to encourage students to make the leap from the general career cluster to a specific career, a listing of “Pathways and Job Title Samples” is posted as a sidebar. Teachers should note that a *pathway* is defined as a broad and flexible subdivision of a career cluster that is specific enough to provide real-life occupational context. The information included in the “Exploring Career Clusters” supplements and supports *ru ready?*.

Procedure

Use the discussion questions to provide a general overview of each career cluster. Then divide the class into groups for a more in-depth study of particular clusters. Supporting information from this section may be duplicated and distributed to students assigned to further investigate the career cluster of choice. The structure for their investigation is contained in the next section, “Navigating toward My Future,” the major culminating activity of this career education unit.

A valuable concept to explain to students is the extent to which similar jobs can be found in more than one cluster. For instance, if a student is interested in biochemistry, he or she might gravitate to career clusters as diverse as Agriculture, Food and Natural Resources; Health Science; Science, Technology, Engineering and Mathematics; Government and Public Administration; or Education and Training.

Another interesting concept is that of “similar characteristics occupations” wherein a skill set can cross a wide range of careers. This is explored in “Navigating toward My Future.”

Sources

The information contained in this section was gathered from five major sources. Students are encouraged to use these sites to further explore career clusters.

Occupational Outlook Handbook

from The United States Department of Labor, Bureau of Labor Statistics
www.bls.gov/oco

Occupational Outlook Quarterly Online

www.bls.gov/opub/ooq/ooqhome.htm

O*NET OnLine

www.online.onetcenter.org

Overview of Bureau of Labor Statistics by Industry

from The United States Department of Labor, Bureau of Labor Statistics

www.bls.gov/bls/industry.htm

States' Career Clusters

www.careerclusters.org

Agriculture, Food & Natural Resources

Inside Track

The Agriculture, Food, and Natural Resources career cluster attracts people who enjoy physical work and are independent, consistent, resilient, and self-reliant. At its core, this career cluster is focused on predicting and managing patterns in nature. Industries within this cluster include farming, mining, logging, forestry, animal health/science, agriscience, aquaculture, fishing, ecology, conservation, and geology.

The agricultural production industry consists of noncommercial and commercial farms. Although farms generating more than \$250,000 per year in sales make up less than 10 percent of all farms, they supply three-quarters of all agricultural output. Since the 1950s, both agricultural employment and the number of farms have dropped significantly because of mechanization, other technological advancements, and the development of corporate farming.

Fishers face growing restrictions on where they can fish and how much they can harvest, because many fisheries (fish habitats) have been depleted due to years of overfishing. Employment in aquaculture has been growing steadily over the past 12 years in response to growth in the demand for fish.

While the demand for natural resources such as coal and oil continues to rise, so has the need to develop better technologies to locate and drill for new energy sources. There is also an increasing thrust to develop alternative forms of fuel and greater conservation methods.

Trends

Employment of forest and conservation workers is expected to grow nine percent over the 2008–2018 decade, as fast as the average for all occupations. Demand for forest and conservation workers will increase as more land is set aside to protect natural resources and wildlife habitats. In addition, more jobs may be created by recent federal legislation designed to prevent destructive wildfires by thinning forests and by setting controlled burns in dry regions susceptible to forest fires.

Employment of landscape architects is expected to increase by 20 percent during the 2008–2018 decade, which is much faster than the average for all occupations. Employment will grow as new construction, together with the continued redevelopment of existing buildings, creates more opportunities for landscape architects. With land costs rising and the public desiring more beautiful spaces, the need for smart site planning and landscape design is growing.

Additionally, environmental concerns and increased demand for construction projects designed around sustainability will spur demand for the services of landscape architects. For example, landscape architects are involved in designing green roofs covered with vegetation that can significantly reduce costs associated with heating and cooling a building, as well as reduce air and water pollution. Landscape architects will also be needed to design plans to manage storm water run-off in

Pathways and Job Title Samples

Pathway: Agribusiness Systems

Agricultural Commodity Broker
Agricultural Economist
Agricultural Loan Officer
Agricultural Products Sales Representative
Farm Products Purchasing Agent and Buyer
Farm, Ranch Manager
Farmer/Rancher
Feed, Farm Supply Store Sales Manager
Sales Manager

Pathway: Animal Systems

Agricultural Products Sales Representative
Animal Breeder, Husbandry
Animal Geneticist
Animal Nutritionist
Animal Scientist
Aquacultural Manager
Poultry Manager
Veterinarian
Veterinary Technician

Pathway: Environmental Service Systems

Agricultural Products Sales Representative
Environmental Compliance Inspector
Environmental Sampling and Analysis Technician
Hazardous Materials Handler
Recycling Coordinator
Secondary School Teacher
Toxicologist
Turf Farmer
Water Conservationist

Pathway: Food Products and Processing Systems

Biochemist
Food Scientist

Pathway: Natural Resources Systems

Ecologist
Fish and Game Officer
Fisheries Technician
Forest Manager, Forester
Forest Technician
Geological Technician
Microbiologist
Outdoor Recreation Guide
Park Manager
Park Technician
Range Technician
Wildlife Manager

Pathway: Plant Systems

Agricultural Products Sales Representative
Botanist
Certified Crop Advisor
Crop Grower

Pathways and Job Title Samples

Pathway: Plant Systems *continued*

Custom Harvester
Farm, Ranch Manager
Farmer/Rancher
Floral Designer
Floral Shop Manager
Forest Geneticist
Golf Course Superintendent
Machine Setter, Operator
Nursery and Greenhouse Manager
Ornamental Horticulturist
Plant Breeder/Geneticist
Secondary School Teacher
Soil and Plant Scientist
Tree Surgeon
Turf Farmer

Pathway: Power, Structural, and Technical Systems

Agricultural Engineer
Agricultural Equipment Operator
Agricultural Equipment Parts Manager
Agricultural Parts Salesperson
Machinist
Parts Manager
Welder

a way that diminishes pollution of waterways and conserves water resources.

One fast-growing piece of the local-food movement is community supported agriculture (CSA), in which local farmers grow, harvest and often deliver fresh produce and other foods to members who buy annual “shares” in the operation’s output. Packaged Facts, a market research firm, reports that consumer demand for locally grown products hit nearly \$5 billion in 2007 “and could rise to as much as \$7 billion a year by 2012” (http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=4273).

Farmers markets are an integral part of the urban/farm linkage and have continued to rise in popularity, mostly due to the growing consumer interest in obtaining fresh products directly from the farm. Farmers markets allow consumers access to locally grown, farm-fresh produce and give farmers the opportunity to develop relationships with their customers. Direct marketing of farm products through farmers markets continues to be an important sales outlet for agricultural producers nationwide. As of mid-2009, there were 6,132 farmers markets operating throughout the U.S. This is a 16 percent increase from 2009. (<http://www.ams.usda.gov/AMSV1.0/farmersmarkets>). Organic farming has seen many gains in recent years and is now the fastest growing segment in agriculture. Organic dairy products are gaining a larger presence in the market, and more organic grain farmers are in demand to produce feed for organically raised livestock. As consumers learn—and care—more about their food sources and the environment, sustainable and certified naturally grown farming are becoming important considerations, along with the organic seal.

Considerations

- Self-employed workers—mostly farmers and fishers—account for 39 percent of the industry’s workforce.
- Agricultural production remains one of the nation’s top 10 industries in terms of total employment.
- Workers are often expected to perform their duties without close supervision in rural and remote areas. If working in natural environments and with animals is more appealing than being around people, farm life might be a good fit.
- Genetic manipulation and hormonal alteration have increased production dramatically, but questions are growing about the potential residual effects and implications these drugs and procedures may have over long-term use.
- Considering pesticide use, erosion, nitrogen depletion, flood plain expansion, unpredictable weather events, and pollution and waste issues, agricultural production is a serious endeavor that demands a great deal of planning and discipline.
- In the natural resources area, one must consider the ethical and economic ramifications of steadily depleting resources. Nowhere is this more apparent today than with deforestation and the gradual reduction of federally protected lands. Finding workable solutions to all these problems is one of the most challenging agricultural/scientific occupational areas.

- According to the USDA, certified organic acreage quadrupled between 1992 and 2008, and the number of organic operations nearly tripled. While still much smaller in number than conventional farms, growth in the organic industry seems likely to continue which may lead to career opportunities.

Discussion Questions

What are the significant changes in farming from the 1950s to present day?

What are some of the major challenges facing the fishing industry?

What improvements are being made, by those who work in Agriculture, Food, and Natural Resources to safeguard the quality of lands and waters?

In what ways do farmers markets and community supported agriculture (CSA) strengthen a community?

What are the differences among organic, sustainable, and certified naturally growing practices?

Inside Track

Those who have careers in the Architecture and Construction cluster have a desire to see their plans, work, and materials successfully come together to satisfy both form and function. Architects are licensed professionals trained in the art and science of building design who develop the concepts for structures and turn those concepts into images and plans. They are creative and analytical and have an eye for detail. Construction, in its essence, is a reaction to fulfilling a basic individual need for shelter and a social need for infrastructure.

Houses, apartments, factories, offices, schools, roads, and bridges are only some of the products of the construction industry. This industry's activities include work on new structures, as well as additions, renovations, and repairs to existing structures. Architects may be involved in every phase of construction, but primarily their skill involves vision and design. The construction industry is divided into three major segments. General contractors build residential, industrial, commercial, and other buildings. Heavy and civil engineering construction contractors build sewers, roads, highways, bridges, tunnels, and other projects. Specialty trade contractors perform specialized activities related to construction, such as carpentry, painting, plumbing, and electrical work.

Trends

Employment of architects is expected to increase by 16 percent between 2008 and 2018, which is faster than the average for all occupations. Current demographic trends will lead to an increase in demand for architects. Competition is expected, especially for positions at the most prestigious firms, and opportunities will be best for those architects who are able to distinguish themselves with their creativity.

In recent years, some architecture firms have outsourced the drafting of construction documents and basic design for large-scale commercial and residential projects to architecture firms overseas. This trend is expected to continue and may have a negative impact on employment growth for lower-level architects and interns who would normally gain experience by producing these drawings.

The number of wage and salary jobs in the construction industry is expected to grow by 19 percent through the year 2018, compared with the 11 percent projected for all industries combined. Construction, with 7.2 million wage and salary jobs and 1.8 million self-employed and unpaid family workers in 2008, was one of the nation's largest industries. About 64 percent of wage and salary jobs in construction were in the specialty trade contractors sector, primarily plumbing, heating, and air-conditioning; electrical; and masonry. Around 23 percent of jobs were in residential and nonresidential building construction. The rest were in heavy and civil engineering construction.

The construction industry has been strongly affected by the credit crisis and recession that began in December 2007. Housing prices fell, and foreclosures of homes rose sharply, particularly in overbuilt areas

Pathways and Job Title Samples

Pathway: Construction

Cabinetmaker
Carpenter
Construction Manager
Construction and Building Inspector
Drywall Installer
Electrician
General Contractor
Mason
Plumber, Pipefitter
Project Manager
Roofer
Tile Installer

Pathway: Design/Pre-Construction

Architect
Architectural Drafter
Building Code Inspector
Civil Engineer
Cost Estimator
Electrical Engineering Technician
Interior Designer
Landscape Architect
Mechanical Drafter
Mechanical Engineer
Surveyor

Pathway: Maintenance and Operations

Restoration Technician

of the country. New housing construction, while still ongoing, dropped significantly. The recession is expected to impact other types of construction as well. Retailers are refraining from building new stores, and state and local governments are reducing spending. However, as energy costs have risen, some companies are finding it necessary to build or renovate buildings that are not energy efficient. **“Green construction”** is an area that is increasingly popular and involves making buildings as environmentally friendly and energy efficient as possible by using more recyclable and earth-friendly products.

Considerations

- Working to meet a deadline often involves long hours at the job.
- Because the construction trades are project oriented, workers sometimes suffer layoffs when work is slow.
- Construction work is labor-intensive and involves exposure to the elements/weather. Great physical stamina and well-being are necessary to work at heights or in cramped quarters.
- The integrity of the worker to maintain high working standards is crucial. Deadlines, variable prices for materials, and overall costs can make it tempting to cut corners and sacrifice quality work.
- Safety issues, both to the worker on the job and to the inhabitants or users of the finished product, is always a significant concern.
- Architects try to solve problems before they happen. They have to know when to uphold their design features and yet remain willing to compromise their vision if the project demands it.
- Prospective architects who gain career-related experience in an architectural firm while they are still in school and who know CADD technology will have a distinct advantage.
- About 21 percent of architects are self-employed—almost 3 times the proportion for all occupations.
- There are three main steps in becoming an architect: completing a professional degree in architecture, gaining work experience through an internship, and attaining licensure by passing the Architect Registration Exam.
- Job opportunities are expected to be good, especially for skilled and experienced construction trades workers.
- Construction workers have relatively high hourly earnings.
- Construction includes a very large number of self-employed workers.

Discussion Questions

Why do construction workers and architects bear such a great responsibility for the quality of their work?

How will an aging population affect the construction trade?

What are some of the most interesting architectural structures in this region?

If you could build any structure, large or small, what would it be?

Why are there layoffs in construction?

Why do you need leadership skills to be an effective architect?

Why is the construction industry one of the yardsticks of the economy?

What is the implication of LEED (Leadership in Environmental and Energy Design) for the architecture and construction industry?

What is the impact of environmentally-friendly, “green” construction?

What are the possibilities for up-and-coming architects and builders in “green” construction?

How does sustainability apply to architecture and construction?

Arts, A/V Technology & Communications

Inside Track

The Arts, A/V Technology, and Communications career cluster attracts people who are creative, use inductive reasoning to compare experience and bits of related information, and are good organizers. The chief concerns of this cluster are expression, interpretation, and presentation. The services deal with designing, producing, exhibiting, performing, writing, broadcasting, and publishing multimedia content, which includes visual, performing arts and design, journalism, and entertainment services.

The effects of technology on business and industry have been remarkable, and the enormous influence communications has had on our private lives and on the collective culture continues to shift and grow. Rapid growth in communications has been pushed forward by new technologies and has created a truly global marketplace. The rapid growth has also caused shifts away from more traditional forms of communication.

Trends

Employment in the telecommunications industry is expected to decline by 9 percent over the 2008–2018 period, compared with 11 percent growth for all industries combined. Despite an increasing demand for wireless Internet, cable television, and mobile technologies, productivity gains will result in a reduced demand for workers. As telecommunications infrastructure becomes more reliable, for example, fewer workers will be needed to make repairs. Also, consolidation among organizations will lead to productivity growth across many occupational groups, as combined operations generally require fewer total workers.

Artists communicate ideas, thoughts, and feelings through a variety of methods and an assortment of materials. Artists' works may be realistic, stylized, or abstract and may depict objects, people, nature, or events. Artists generally fall into one of four categories. Art directors formulate design concepts and presentation approaches for visual communications. Craft artists create handmade objects for sale and exhibition. Fine artists, including painters, sculptors, and illustrators also create original artwork for sale and exhibition. Multimedia artists and animators create special effects, animation, and other visual images on film, on video, or with computers or other electronic media. Employment of artists and related workers is projected to grow about as fast as the average. Competition for jobs is expected to be keen for both salaried and freelance jobs in all specialties because the number of people with creative ability and an interest in this career is expected to continue to exceed the number of available openings. Despite the competition, employers and individual clients are always on the lookout for talented and creative artists.

Wage and salary employment in the motion picture and video industries is projected to grow 14 percent between 2008 and 2018, compared with 11 percent growth projected for wage and salary

Pathways and Job Title Samples

Pathway: Audio and Video Technology and Film

Audio and Video Equipment Technician
Audio-Video Designer, Engineer
Editor
Graphic Designer
Multimedia Artist, Animator
Producer
Sound Engineering Technician
Videographer

Pathway: Journalism and Broadcasting

Art Director
Broadcast Technician
Editor
Program Director
Radio, Television Announcer
Radio, Television Reporter

Pathway: Performing Arts

Cinematographer
Costume Designer
Lighting Designer
Technical Director
Video, Film Editor

Pathway: Printing Technology

Desktop Publisher
Job Printer

Prepress Technician
Press Operator
Production, Planning, Expediting Clerk

Pathway: Telecommunications

Computer Programmer
Network Systems and Data
Communication Analyst
Telecommunications Equipment
Installer, Repairer

Pathway: Visual Arts

Commercial Photographer
Costume Designer
Fashion Designer
Fashion Illustrator
Graphic Designer
Illustrator
Interior Designer
Media Planner, Buyer
Multimedia Artist, Animator
Photographic Process Technician
Textile Designer

employment in all industries combined. Job growth will result from the increase in demand for programming needed to fill the rising number of cable and satellite television channels, both in the United States and abroad. Also, more films will be needed to meet in-home demand for videos, DVDs, and films over the Internet.

Graphic designers—or graphic artists—plan, analyze, and create visual solutions to communications problems. They find the most effective way to get messages across in print and electronic media using color, type, illustration, photography, animation, and various print and layout techniques. Employment of graphic designers is expected to grow by 13 percent, as fast as the average for all occupations from 2008 to 2018, as demand for graphic design continues to increase from advertisers and computer design firms. Moreover, graphic designers with Web site design and animation experience will especially be needed as demand increases for design projects for interactive media—Web sites, mobile phones, and other technology. Demand for graphic designers also will increase as advertising firms create print and Web marketing and promotional materials for a growing number of products and services. Growth in Internet advertising, in particular, is expected to increase the number of designers.

Considerations

- Since information is more accessible and transmittable than ever, right-to-privacy and copyright issues are prevalent in this industry.
- Small or independent filmmakers may provide the best job prospects for new entrants. Virginia has several locations where filmmaking takes place: See <http://www.film.virginia.org/>.
- Earnings for self-employed artists vary widely; some well-established artists earn more than salaried artists, while others find it difficult to rely solely on income earned from selling art.
- A bachelor's degree is usually required of graphic designers.
- Job seekers are expected to face keen competition; individuals with Web site design and animation experience will have the best opportunities.

Discussion Questions

How connected is “too connected”? How can individuals set their own boundaries for “being connected”?

What are the laws regarding driving while talking on cell phones and texting? What are your views about talking on cell phones and texting while driving?

How might community programs, projects, art, and theatrical offerings thrive as a response to being too connected to technology? What opportunities might there be for employment at these local levels?

Where do you seek local and national news? Why?

What categories of news most appeal to you? Why?

What forms of media-generated entertainment do you enjoy? Why?

Business Management & Administration

Inside Track

The Business Management and Administration career cluster attracts those who are effective planners, communicators, and leaders; they are task-oriented and analytical, flexible, decisive, detail-oriented, well-organized, and efficient. Those involved in business and administration are concerned with the successful coordination and efficient management of resources and are often driven to enhance the profitability of their enterprise or organization. Administrators and managers deal with planning, managing, and providing administrative support, information processing, accounting and human resource management services, and related business management support services. Independent management and public relations firms also influence how businesses, governments, and institutions make decisions.

Trends

Employment of administrative services managers is projected to grow by 12 percent over the 2008–2018 decade, about as fast as the average for all occupations. Continued downsizing by companies and increasing use of office technology may result in a more streamlined organizational structure with fewer levels of management. As business becomes more complex, firms are continually faced with new challenges and increasingly rely on management analysts to help them remain competitive. Management analysts, often referred to as management consultants in private industry, propose ways to improve an organization's structure, efficiency, and profits. Employment of management analysts is expected to grow by 22 percent over the 2008–2018 decade, much faster than the average for all occupations.

Job growth is projected in very large consulting firms with international expertise and in smaller consulting firms that specialize in specific areas, such as biotechnology, health care, information technology, human resources, engineering, and marketing. Growth in the number of individual practitioners may be hindered by increasing use of consulting teams that are often more versatile. Job growth for management analysts will be driven by a number of changes in the business environment that have forced firms to take a closer look at their operations. These changes include increased regulation, developments in information technology, and the growth of electronic commerce. In addition, as firms try to respond to regulatory changes resulting from the current economic credit and housing crises, consultants will be hired to render advice. Firms will also hire information technology consultants who specialize in environmentally conscious use of technology to help lower energy consumption and implement “green” initiatives. Traditional companies hire analysts to help design Intranets, company Web sites, or to establish online

Pathways and Job Title Samples

Pathway: Administrative Support

Administrative Assistant
Computer Operator
Court Reporter
Customer Service Representative
Data Entry Specialist
Dispatcher
Executive Assistant
Front Office Assistant
Information Assistant
Legal Assistant
Librarian
Medical Transcriptionist
Office Manager
Order Processor
Paralegal
Project Manager
Receptionist
Records Processing Assistant
Shipping and Receiving Clerk

Pathway: Business Information Management

Account Executive
Administrative Assistant
Applications Integrator
Budget Analyst
Communication Equipment Operator
Computer Support Specialist
Cost Analyst
Court Reporter
Customer Service Representative
Data Entry Specialist
Database Analyst
Desktop Publisher
Executive Assistant
Financial Analyst
Front Office Assistant
Information Assistant
Legal Assistant
Maintenance Technician
Market Research Analyst
Marketing Manager
Medical Transcriptionist
Office Manager
Operations Research Analyst
Paralegal
Project Manager
Receptionist
Records Processing Assistant
Software Test Engineer
Systems Analyst
Technical Writer
Word Processor

Pathway: General Management

Administrative Assistant
Administrative Services Manager
Bill and Account Collector
Billing Manager
Business and Development Manager
Chief Executive Officer

Pathways and Job Title Samples

Pathway: General Management

continued

Contract Administrator
Credit Manager
Customer Service Representative
Director
Entrepreneur
Executive Assistant
Facilities Manager
Financial Manager
Franchisee
General Manager
Human Resources Manager
Master Scheduler
Medical Assistant
Medical Transcriptionist
Meeting and Convention Planner
Office Manager
Operations Manager
Payroll Manager
Project Manager
Purchasing Manager
Records Processing Assistant
Sports and Entertainment Manager

Pathway: Human Resources Management

Administrative Assistant
Compensation and Benefits Manager
Compliance Officer
Equal Employment Opportunity Specialist
Human Resources Administrative
Assistant
Human Resources Manager
Occupational Analyst
Office Manager
Personnel Recruiter
Project Manager
Public Relations Manager
Training and Development Manager

Pathway: Operation Management

Administrative Services Manager
Billing Manager
Chief Operating Officer
Copy Writer
Customer Service Representative
Customer Service Supervisor
Department Manager
Entrepreneur
Facilities Manager
General Manager
Internet Entrepreneur
Marketing Manager
Master Scheduler
Media Planner, Buyer
Payroll Manager
Procurement Specialist
Purchasing Manager
Sales Manager
Salesperson
Shipping and Receiving Clerk
Sports and Entertainment Manager

business. New Internet startup companies hire analysts not only to design Web sites, but also to advise them in traditional business practices, such as pricing strategies, marketing, and inventory and human resource management.

Considerations

- Being an effective businessperson means looking out for yourself as well as the office, industry, or shareholders you represent. You must also be attentive to the bottom line on the balance sheet.
- Businesses are as diverse as people, so it pays to be aware of the type of business you want to work for before you become involved with it. While people may be working as a team, they are nonetheless often in direct competition with each other for advancement.
- Reputation carries weight in the business world, but so does success that can be measured.
- Providing honest, quality service, before and after transactions, is one of the essential elements to standing apart from the rest in your business.

Discussion Questions

*What is bureaucracy, and how does the term apply to
business/administration?*

Why might losing your job lead you to become an entrepreneur?

What is the most difficult aspect about working with others?

The most enjoyable?

*Can you name some businesses and institutions you think are poorly run and
some that are well run?*

What are your criteria for a well-run business?

Inside Track

Those interested in pursuing occupations in the Education and Training career cluster are commonly attracted to playing a role in the intellectual, social, and emotional development of others and/or passing on the tools of a trade. Education is an important part of life. The amount and type of education that individuals receive can directly influence both the types of jobs they are able to hold and their earnings. Lifelong learning is important in acquiring new knowledge and upgrading one's skills, particularly in this age of rapid technological and economic changes. Individuals in this cluster deal with planning, administering, managing, and providing education and training services. Related learning support services include library, information services, child care, and counseling services, and also preparatory medical training in educational settings.

Trends

Teachers must have the ability to communicate, inspire trust and confidence, and motivate students, as well as understand students' educational and emotional needs. Teachers must get to know each student to comprehend his or her unique needs, learning style, social and cultural background, interests, and abilities. Job prospects are best for teachers in high-demand fields, such as mathematics, science, and bilingual education, and in under served urban or rural school districts.

Employment of kindergarten, elementary, middle, and secondary school teachers is expected to grow by 13 percent between 2008 and 2018. Postsecondary teachers are expected to grow by 15 percent between 2008 and 2018. Employment of adult literacy and remedial education teachers is expected to grow by 15 percent through 2018. Significant employment growth is anticipated especially for English for speakers of other languages (ESOL) teachers, who will be needed to help immigrants and other residents improve their English skills. The number of special education teachers is expected to increase by 17 percent from 2008 to 2018.

Instructional coordinators—also known as curriculum specialists, personnel development specialists, instructional coaches, or directors of instructional material—play a large role in improving the quality of education in the classroom. They develop curricula, select textbooks and other materials, train teachers, and assess educational programs for quality and adherence to regulations and standards. They also assist in implementing new technology in the classroom. The number of instructional coordinators is expected to grow by 23 percent over the 2008–2018 decade.

Employment of librarians is expected to grow by 8 percent between 2008 and 2018. Jobs for librarians outside traditional settings will grow the fastest over the decade. Nontraditional librarian jobs include working as information brokers and working for private corporations, nonprofit organizations, and consulting firms. Many companies are turning to librarians because of their research and organizational skills and their knowledge of computer databases and library automation

Pathways and Job Title Samples

Pathway: Administration and Administrative Support

Instructional Coordinator
School Principal
School Superintendent
Training and Development Manager

Pathway: Professional Support Services

Audiologist
Marriage and Family Therapist
Mental Health Counselor
Speech-Language Pathologist

Pathway: Teaching and Training

Child Care Worker
Coach, Secondary Level
Director, Early Childhood Education
Center
Elementary School Teacher
Kindergarten Teacher
Owner, Early Childhood Education
Center
Secondary School Teacher
Special Education Teacher
Teacher Assistant
Training Consultant/Training Specialist

systems. Librarians can review vast amounts of information and analyze, evaluate, and organize it according to a company's specific needs. Librarians also are hired by organizations to set up information on the Internet. Librarians working in these settings may be classified as systems analysts, database specialists and trainers, Web developers, or local area network (LAN) coordinators.

Considerations

- Educational services is the second largest industry, accounting for about 13.5 million jobs in 2008.
- Including duties outside the classroom, most teachers work more than 40 hours a week.
- Coping with student behavior and violence in the schools is a central issue in most communities.
- The student population continues to diversify in learning styles, personal background, ethnicity, income level, and intellectual ability.
- Education is inexorably tied to its funding, and funding, for the most part, comes from government. Therefore, government decisions and legislation play a central role in determining the future of education.

Discussion Questions

The teacher can become the resource for this career cluster. Put your own decision to pursue a career in education at the center of your students' discussion. Talk about the following:

- *When did your interest in education begin to grow?*
- *How did you get started?*
- *What kind of training and schooling did you need?*
- *What are your biggest concerns with education?*

Addressing the student, who is/was your favorite teacher? Why?

What advice do you have for the educational system?

Inside Track

Occupations in the Finance career cluster are bound by the desire for wealth and asset management and are ultimately focused on providing security and financial growth for clients. Whether through banking, investing, financial planning, studying the economy, or providing a variety of insurance-related services to firms, businesses, and individuals, the Finance cluster generally attracts workers who are interested in math, have strong deductive reasoning and interpersonal skills, and are analytical by nature. Careers in this cluster demand that workers have personal integrity and self reliance.

Trends

As the level of investment increases, overall employment of financial analysts is expected to increase by 20 percent during the 2008–2018 decade. Primary factors for this growth are increasing complexity and global diversification of investments and growth in the overall amount of assets under management. The number of personal financial advisors is projected to grow by 30 percent over the 2008–2018 period as advisors will be needed to assist the millions of workers expected to retire in the next 10 years. As members of the baby boom generation reach their peak years of retirement savings, personal investments are expected to increase, and more people will seek the help of experts. Many companies also have replaced traditional pension plans with retirement savings programs, so more individuals are managing their own retirement investments than in the past, creating jobs for advisors.

Wage and salary employment in banking is projected to grow by eight percent between 2008 and 2018. Banks compete strongly to attract new customers. Because convenience of local branches is one of the most important factors for customers selecting a bank, the number of local branches will continue to increase.

Banks will continue to face considerable competition in financial services from nonbank establishments, such as insurance companies and independent financial advisor firms.

Considerations

- Operating with impeccable ethics is essential in the Finance career cluster.
- Working in the financial field is dependent chiefly on one's ability to offer good, time-tested advice and to build and maintain relationships with clients. Handling someone else's money demands respect, honesty, empathy, precision, objectivity, and care. Failure to detect a client's expectations or neglecting a client's needs altogether is unprofessional behavior.
- One's ability to communicate clearly is paramount.
- Like many fields where workers are somewhat independent (with the exception of support staff), experience and reputation can build a career.

Pathways and Job Title Samples

Pathway: Accounting

Accountant
Accounting Clerk
Controller
Cost Analyst
Management Accountant
Merger and Acquisitions Manager
Personal Financial Advisor
Revenue Agent
Tax Accountant

Pathway: Banking Services

Account Executive
Accountant
Branch Manager
Bill and Account Collector
Compliance Officer
Credit Analyst
Debt Counselor
Financial Manager
Loan Officer
Personal Financial Advisor
Teller
Title Researcher

Pathway: Business Finance

Accountant
Accounting Clerk
Auditor
Bill and Account Collector
Cash Manager
Controller
Cost Analyst
Economist
Financial Analyst
Management Accountant
Project Manager
Revenue Agent
Shipping and Receiving Clerk
Tax Accountant
Tax Preparer

Pathway: Insurance

Actuary
Benefits, and Job Analysis Specialist
Claims Adjuster
Claims Clerk
Claims Examiner
Compliance Officer
Customer Service Representative
Insurance Appraiser
Insurance Processing Clerk
Insurance Sales Agent
Risk and Insurance Manager

Pathways and Job Title Samples

Pathway: Securities and Investments

Financial Analyst
Fund Manager
Meeting and Convention Planner
Personal Financial Advisor
Real Estate Developer
Securities and Commodities Sales
Tax Preparer

- Many in the financial services trades work longer than the 40-hour week and are exceptionally driven and competitive. They are often people who are attracted to the accumulation and development of wealth just like their clients.
- Bankers must build positive reputations in the community.
- Layoffs in the financial world directly correspond to the health and potential health of the economy. In fact, one of the telltale market indicators is the rate of employment in the financial sector, especially in brokerage houses.
- Members of the financial workforce are often forced to go through long periods of income boom and bust, especially those who work on commission.
- About 29 percent of personal financial advisors are self-employed.

Discussion Questions

Do you read the financial sections of the newspaper or listen to market reports on television or the radio? Why, or why not?

How has the current financial crisis affected the stock market? Housing market? Financial institutions?

What is an economic bailout?

Do you think bailouts are a good practice? Why, or why not?

What are some strategies and resources to deal with an economic downturn?

Do you know what a ticker is? NASDAQ? Dow Jones?

What are the biggest financial markets in the United States?

What is the Federal Reserve Bank? What does it do that banks in the private sector do not do?

How do interest rates affect spending/saving?

Can you name some financial services you currently use? Credit cards? Checking/savings accounts? Online investing? Car insurance?

What do you know about smart selection and use of a credit card company?

Do you file a tax return?

Government & Public Administration

Inside Track

Those seeking occupations in the Government and Public Administration career cluster are effective at conceiving ideas, planning projects, and issuing and/or putting directives into action. They are especially adept at using inductive reasoning to handle problems on their way to finding appropriate solutions. Some of these workers are skilled bureaucrats who usually rely on their communication skills to foster dynamic interpersonal and professional relationships. Occupations in Government and Public Administration deal with planning, managing, and providing, legislative, administrative, and regulatory services; these include government services at the federal, state, and local levels. State government has a larger percentage of executive and professional specialty occupations, while local government employs a higher share of service and production workers.

Trends

Wage and salary employment in state and local government is projected to increase eight percent during the 2008–2018 period. Job growth will stem from the rising demand for services at the state and local levels, particularly demand for public safety and health services. Two factors are fueling the growth of these services: an increasing population and the assumption of responsibility by state and local governments for some services previously provided by the federal government. Despite the increased demand for the services of state and local governments, employment growth will continue to be dampened by budgetary constraints due to the rapidly increasing proportion of revenues devoted to the Medicaid program and public resistance to tax increases. Outsourcing of government jobs to the private sector will also limit employment in state and local government. When economic times are good, many state and local governments increase spending on programs and employment.

With about two million civilian employees, the federal government is the nation's largest employer. Wage and salary employment in the federal government is projected to increase by 10 percent over the 2008–2018 period. Because of the wide range of federal jobs, working conditions vary considerably. Most federal employees work in office buildings, hospitals, or laboratories; but a large number also can be found at border crossings, airports, shipyards, military bases, construction sites, national parks, and other settings. Work environments vary from clean and comfortable to hazardous and stressful, such as those experienced by law enforcement officers and air traffic controllers.

For the most part, areas of employment in the governmental sector offer lower pay than their counterparts in the private sector. However, benefits may be more dependable. Federal employment is affected by political agendas and national concerns (e.g., homeland security).

Pathways and Job Title Samples

Pathway: Foreign Service

Diplomatic Courier
Foreign Service Worker
Interpreter/Translator

Pathway: Governance

Legislative Aide
Legislator

Pathway: National Security

Combat Specialty Officer
Military Enlisted Personnel
Military Intelligence Specialist
Military Officer
Special Forces Personnel

Pathway: Planning

Economic Development Coordinator
Urban and Regional Planner

Pathway: Public Management and Administration

County Clerk
Government Accountant/Auditor
Postal Service Clerk
Postmaster/Mail Superintendent

Considerations

- The executive branch is composed of the Executive Office of the President, 14 executive cabinet departments, and more than 90 independent agencies. Each of the 14 executive cabinet departments (e.g., Defense, Treasury, State, Labor) administers programs that oversee an element of American life.
- Some smaller, but well-known independent agencies include the National Aeronautics and Space Administration (NASA), the Environmental Protection Agency (EPA), and the Peace Corps.
- Local governments employ more than twice as many workers as state governments.
- Professional and service occupations account for more than half of all jobs; firefighters and law enforcement workers, concentrated in local government, are among the largest occupations.
- Although job prospects vary by state and region, overall prospects are expected to be favorable.
- Employer-provided benefits are more common among state and local government employees than among workers in the private sector.

Discussion Questions

What are some well-known government agencies, independent or otherwise?

What are some pros and cons of working for the government (federal or state)?

So many of these job titles in Government and Public Administration can be found in other career clusters. Why do you think government has its own career cluster?

With whom and for what do government programs compete?

How do you define administration?

How can new political administrations affect government workers?

How can individuals play a role in keeping ethics in local, state, and federal governments?

What are “watch dog” groups?

What is a “whistle blower”? What are some well known whistle-blower cases?

Could you see yourself as a whistle blower? Explain.

Inside Track

The Health Science career cluster is big and getting bigger. Still, everyone from the orderly to the neurosurgeon has at least one thing in common: they provide comfort, care, and repair to human beings.

Combining medical technology and the human touch, the health care industry administers care around the clock, responding to the needs of millions of people—from newborns to the critically ill. The skill to facilitate human relationships, a precise use of communication skills, and interpretive analysis are crucial tools in the practice of any health occupation. New advances in science are paving the way for medical breakthroughs and cures. Therefore, those involved in health services must keep abreast of improvements in their industry. Obviously, since health is perhaps one's most valued asset, one hopes to entrust it only to the most capable individuals.

Nearly half a million establishments make up the health services industry, and all vary greatly in terms of size, staffing, and organization. Two-thirds of all private health services establishments are offices of physicians or dentists. Health care is made up of medical hospitals, mental health facilities, home health care, private offices and clinics, health and allied services, medical and dental laboratories, online medical Web sites (both reputable and otherwise), and other segments, like alternative medicine practitioners.

Trends

As one of the largest industries in 2008, health care provided 14.3 million jobs for wage and salary workers. Ten of the 20 fastest growing occupations are health-care related. Health care will generate 3.2 million new wage and salary jobs between 2008 and 2018, more than any other industry, largely in response to rapid growth in the elderly population. Most workers have jobs that require less than four years of college education, but health diagnosing and treating practitioners are highly educated.

Physician assistants (PAs) practice medicine under the supervision of physicians and surgeons. PAs are formally trained to provide diagnostic, therapeutic, and preventive health care services, as delegated by a physician. Employment of physician assistants is expected to grow by 39 percent from 2008 to 2018, much faster than the average for all occupations. Projected rapid job growth reflects the expansion of health care industries and an emphasis on cost containment, which results in increasing use of PAs by health care establishments.

Registered nurses (RNs) constitute the largest health care occupation, with 2.6 million jobs. About 60 percent of RN jobs are in hospitals. The three typical educational paths to registered nursing are a bachelor's degree, an associate degree, and a diploma from an approved nursing program. Advanced practice nurses—clinical nurse specialists, nurse anesthetists, nurse-midwives, and nurse practitioners—need a master's degree. Overall job opportunities are expected to be excellent,

Pathways and Job Title Samples

Pathway: Biotechnology Research and Development

Biochemist
Cell Biologist
Medical, Clinical Laboratory Technician
Research Assistant

Pathway: Diagnostic Services

Cardiovascular Technologist
Computer Tomography (CT) Technologist
Medical, Clinical Laboratory Technician
Medical, Clinical Laboratory Technologist
Nuclear Medicine Technologist
Phlebotomist
Radiologic Technologist, Radiographer
Radiologist

Pathway: Health Informatics

Admitting Clerk
Clinical Ethicist
Epidemiologist
Financial Manager
Health Educator
Medical Assistant
Medical Biller, Patient Financial Services
Medical, Health Services Manager
Medical Information Technologist

Pathway: Support Services

Administrative Assistant
Communications Equipment Operator
Data Entry Specialist
Environmental Sampling and Analysis Technician
Food Service Worker
Front Office Assistant
Materials Manager
Medical Transcriptionist
Medical, Clinical Laboratory Technologist
Records Processing Assistant

Pathway: Therapeutic Services

Athletic Trainer
Audiologist
Certified Nurse Aide
Dental Assistant
Emergency Medical Technician, Paramedic
Exercise Physiologist
Home Health Aide
Licensed Practical Nurse
Massage Therapist
Medical Assistant
Mortician
Occupational Therapist
Occupational Therapist Aide
Optician
Pharmacy Technician
Physical Therapist/Assistant

Pathways and Job Title Samples

Pathway: Therapeutic Services

continued

Recreation Therapist
Registered Nurse
Surgical Technician
Veterinary Assistant/Technologist

but may vary by employment and geographic setting; some employers report difficulty in attracting and retaining an adequate number of RNs.

Physical therapists, sometimes referred to as simply PTs, are health care professionals who diagnose and treat individuals of all ages, from newborns to the very oldest, who have medical problems or other health-related conditions, illnesses, or injuries that limits their abilities to move and perform functional activities as well as they would like in their daily lives. Physical therapists examine each individual and develop a plan using treatment techniques to promote the ability to move, reduce pain, restore function, and prevent disability. In addition, PTs work with individuals to prevent the loss of mobility before it occurs by developing fitness and wellness-oriented programs for healthier and more active lifestyles. Employment of physical therapists is expected to grow by 30 percent from 2008 to 2018,

Occupations with relatively few replacement openings are those with high pay and status, lengthy training requirements, and a high proportion of full-time workers, such as physicians. For some executive, administrative, and managerial occupations, rapid growth will be countered by restructuring to reduce administrative costs and streamline operations.

Considerations

- Health Science is strong among the career clusters that rely on developing client/worker relationships. Often practitioners must apply their perceptive abilities to translate what the consumer wants and needs.
- Health care workers involved in direct patient care must take precautions to guard against back strain from lifting patients and equipment, exposure to radiation and caustic chemicals, and infectious diseases such as AIDS, tuberculosis, and hepatitis.
- Health care is also extremely sensitive to money/funding issues as many of the services are paid for through reimbursement. Financial accountability is key when dealing with government and insurance agencies.

Discussion Questions

What is a national health care system?

Why might it be an advantage to be bilingual in a health care profession?

What is malpractice? Health care insurance? Medicaid? An HMO?

How much education does one need to become a heart surgeon/cardiologist?

Why is there a rising need for home health care providers?

What is involved in becoming a midwife? What is their role in society today?

What is a naturopathic physician?

Inside Track

Chiefly a service-oriented career cluster, Hospitality and Tourism concerns itself with providing lodging, food, recreation, convention services, tourism, and travel, as well as related planning and support services. Those interested in pursuing such careers are empathic and often extremely intuitive about the expectations of consumers. Workers in this cluster take distinct pleasure in providing unique, individualized service. Those who provide optimum service are seen as assets, because they can make or break the reputation of an entire establishment. Therefore, employees must have integrity, for they embody the vision of their employers and reflect the quality of their location. Even those who work behind the scenes are noticed, especially when service falls off and consumers become disappointed. Employees of large resorts and hotels must be able to work as an orchestrated team.

Trends

Hotels and other accommodations are as different from each other as the many family and business travelers they accommodate. The industry includes all types of lodging, from luxurious five-star hotels to youth hostels, working dude ranches, volunteer vacations, and RV (recreational vehicle) parks. While many provide simply a place to spend the night, others cater to longer stays by providing food service, recreational activities, and meeting rooms. In 2008, 64,300 establishments provided accommodations to suit many different needs and budgets. The hospitality and tourism industry is expected grow by five percent over the 2008-2018 period.

Food and beverage workers are the front line of customer service in restaurants, casual dining eateries, and other food service establishments. These workers greet customers, take their orders, and serve food and beverages. They also answer questions, explain menu items and specials, and clean tables and dining areas. Most work as part of a team, helping coworkers to improve workflow and customer service. Most jobs are part time and have few educational requirements, attracting many young people to the occupation—21 percent of these workers were 16 to 19 years old in 2008, about six times the proportion for all workers. Job openings are expected to be abundant through 2018, which will create excellent opportunities for job seekers. Tips comprise a major portion of earnings for servers, so keen competition is expected for jobs in fine dining and more popular restaurants where potential tips are greatest. Many cooks and food preparation workers are young—35 percent are below the age of 24. One-third of these workers are employed part time. Job openings are expected to be plentiful because many of these workers will leave the occupation for full-time employment or better wages.

Chefs, head cooks, and food preparation and serving supervisors oversee the daily food service operation of a restaurant or other food

Pathways and Job Title Samples

Pathway: Lodging

Bookkeeping, Accounting, or Auditing Clerk
Caterer
Chief Engineer
Concierge
Executive Housekeeper
Front Desk Clerk
Front Office Manager
Lodging Manager
Marketing Manager
Reservationist

Pathway: Recreation, Amusements and Attractions

Advertising and Promotions Manager
Camp Counselor
Caterer
Meeting and Convention Planner
Recreation Supervisor
Recreation Worker
Retail Manager
Sports Promoter

Pathway: Restaurants and Food/ Beverage Services

Caterer
Cook
Destination Manager
Entrepreneur
Executive Chef
Facilities Manager
Food Service Manager
Franchisee
Host, Hostess
Meeting and Convention Planner

Pathway: Travel and Tourism

Director of Convention and Visitors Bureau
Director of Tourism Development
Human Resources Manager
Meeting and Convention Planner
Tour and Travel Guide
Travel Agent

service establishment. Chefs and head cooks are usually responsible for directing cooks in the kitchen, dealing with food-related concerns, and providing leadership. They are also the most skilled cooks in the kitchen and use their creativity and knowledge of food to develop and prepare recipes. Job opportunities are expected to be good, despite slower than average employment growth, due to the large numbers of workers who leave the occupation and need to be replaced. However, keen competition is expected for jobs at upscale restaurants that generally pay more.

Considerations

- Entertainment is steered by social trends, values, and the economy. Therefore, one must stay abreast of these trends in order to find a profitable niche. In the United States, travel is distinctly seasonal, and depending on the job in the Hospitality and Tourism cluster, the worker may experience seasonal drop-off as well as a demanding peak season.
- Job turnover is relatively high in this industry. To attract and retain workers, the lodging industry is placing more emphasis on hiring and training.
- In management positions in the lodging industry, relocation is part of the job.
- Workers must bear a genuine willingness to serve others and truly enjoy people. Without these traits, advancement will be extremely difficult.
- While customer satisfaction drives the economy in Hospitality and Tourism, success is often measured by the smiles on consumers' faces.

Discussion Questions

What are some hotel chains in your area?

What are volunteer vacations? Would you be interested in trying one? Why, or why not?

What are some kinds of specialty resorts?

Are there any recreational parks in your area? If so, which ones?

What is the appeal of the bed and breakfast?

Do you and your family take vacations? If so, where?

Can you name a place in the United States that you would like to visit? Why?

How does one get training for entry-level jobs in the restaurant trades?

Inside Track

Those interested in pursuing occupations in the Human Services career cluster are usually nurturing, empathetic, and compassionate and are gratified by making a positive difference in the lives of others. Occupations are concerned with promoting and providing family and community relations and wellness, including family and work issues, religious services, care for the elderly, and social work. Job training and related service establishments train the unemployed, underemployed, disabled, and others with job market disadvantages. Many miscellaneous social services organizations are concerned with community improvement and social change.

Trends

Social and human service assistants help social workers, health care workers, and other professionals to provide services to people. Social and human service assistant is a generic term for workers with a wide array of job titles, including human service worker, case management aide, social work assistant, community support worker, mental health aide, community outreach worker, life skills counselor, social services aide, youth worker, psychological aide, client advocate, and gerontology aide. They usually work under the direction of workers from a variety of fields, such as nursing, psychiatry, psychology, or social work. The amount of responsibility and supervision, they are given varies a great deal. Some have little direct supervision, while others work under close direction. The number of social and human service assistants is expected to grow by nearly 23 percent between 2008 and 2018.

Home health aides and personal and home care aides help people who are disabled, chronically ill, or cognitively impaired and older adults, who may need assistance to live in their own homes or in residential facilities instead of in health facilities or institutions. They also assist people in hospice and day programs and help individuals with disabilities go to work and remain engaged in their communities. Employment of home health aides is projected to grow by 50 percent between 2008 and 2018, which is much faster than the average for all occupations. Employment of personal and home care aides is expected to grow by 46 percent from 2008 to 2018.

Counselors work in diverse community settings designed to provide a variety of counseling, rehabilitation, and support services. Their duties vary greatly, depending on their specialty, which is determined by the setting in which they work and the population they serve. Although the specific setting may have an implied scope of practice, counselors frequently are challenged with children, adolescents, adults, or families that have multiple issues, such as mental health disorders and addiction, disability and employment needs, school problems or career counseling needs, and trauma.

Overall employment of counselors is expected to increase by 18 percent between 2008 and 2018, which is faster than the average for all occupations. However, growth is expected to vary by specialty.

Pathways and Job Title Samples

Pathway: Consumer Services

Consumer Advocate
Debt Counselor

Pathway: Counseling and Mental Health Services

Career Counselor
Dietitian, Nutritionist
Educational/School Counselor
Marriage and Family Therapist
Mental Health Counselor
Nutritional Counselor
Rehabilitation Counselor
Social and Human Service Assistant
Substance Abuse and Behavioral
Disorder Counselor
Volunteer Coordinator

Pathway: Early Childhood Development and Services

Child Care Worker
Director of Early Childhood Education
Center
Elementary School Teacher
Nanny
Parent and Family Educator
Preschool Teacher
Teacher Assistant

Pathway: Family and Community Services

Adult Day Care Coordinator
Educational/School Counselor
Grief Counselor
Medical, Public Health Social Worker
Personal and Home Care Aide
Rehabilitation Counselor
Social and Community Service Manager
Social and Human Service Assistant
Volunteer Coordinator

Pathway: Personal Care Services

Barber
Cosmetologist
Nail Technician
Personal and Home Care Aide
Personal Trainer

Employment of substance abuse and behavioral disorder counselors is expected to grow by 21 percent. As society becomes more knowledgeable about addiction, more people are seeking treatment. Furthermore, drug offenders are increasingly being sent to treatment programs rather than to jail.

Other consumer groups with numbers on the rise are the mentally and physically disabled and families in crisis. Businesses are implementing more employee counseling programs to keep the workers they have and to make them more productive.

Some occupations, such as child protective services and social workers, continue to demand more workers.

Employment of hairdressers, hairstylists, and cosmetologists will increase by about 20 percent. A state license is required for barbers, cosmetologists, and most other personal appearance workers, although qualifications vary by state. About 44 percent of workers are self-employed; many also work flexible schedules.

Considerations

- Turnover rates in human services jobs are high because on-the-job stress leads to burnout.
- Entry-level workers with only a high school diploma often make low wages yet are asked to endure long shifts, work weekends, and be on-call to work as needed.
- Human services workers must maintain their composure while interacting with difficult clients.
- It takes a strong, committed individual to be successful. Tolerance is crucial.
- Advancement through the ranks is often commensurate with experience, longevity, and level of service, but above all, with level of education and certification. This is an important and difficult hurdle to clear in the Human Services career cluster for those wanting to move into management and administrative positions.
- Some occupations in social services have very specific entrance requirements. These include most of the professional specialty occupations. Those requiring specific clinical training, such as clinical social workers and psychologists, also require appropriate state licensure or certification.

Discussion Questions

Why are social workers commonly overworked and underpaid?

If you had to perform a social service/human service, what would you do and why?

What are some private human service organizations?

What are some government-funded human service organizations?

Inside Track

Those well-suited for jobs in the Information Technology career cluster are usually independent, result-oriented, and achievement-driven. Information technology (IT), as defined by the Information Technology Association of America (ITAA), is “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.” IT deals with the use of computers and software to convert, store, protect, process, transmit, and securely retrieve information. Advances in computer technology impact every segment of the labor market and labor pool. Despite the recent economic downturn among technology firms, workers in this cluster should still enjoy favorable job prospects.

Trends

All organizations today rely on computer and information technology to conduct business and operate more efficiently. Often, however, these institutions do not have the internal resources to effectively implement new technologies or satisfy their changing needs. When faced with such limitations, organizations turn to the computer systems design and related services industry to meet their specialized needs. Employment of computer support specialists is expected to increase by 14 percent from 2008 to 2018. Demand for these workers will result as organizations and individuals continue to adopt the newest forms of technology. As technology becomes more complex and widespread, support specialists will be needed in greater numbers to resolve the technical problems that arise.

Systems design services firms plan and design computer systems that integrate computer hardware, software, and communications technologies. The widespread use of the Internet and intranets also has resulted in an increased focus on security. The robust growth of e-commerce highlights this concern, as firms use the Internet to exchange sensitive information with an increasing number of clients. In order to mitigate this threat, many organizations are employing the services of security consulting firms, which specialize in all aspects of IT security.

Rapid employment growth in the information technology industry, which employs the greatest number of computer software engineers, should result in very good opportunities for those college graduates with at least a bachelor’s degree in computer engineering or computer science and practical experience working with computers. Those who concentrate on specializing their computer skills should always be able to find work.

Pathways and Job Title Samples

Pathway: Information Support and Services

Account Executive
Administrative Assistant
Applications Integrator
Communications Equipment Operator
Computer Support Specialist
Computer Systems Engineer, Architect
Customer Service Representative
Data Entry Specialist
Data Modeler
Database Administrator
Database Analyst
Executive Assistant
Front Office Assistant
Geographic Information Systems (GIS) Technician
Information Systems Analyst
Instructional Coordinator
Internet Entrepreneur
Maintenance Technician
Medical Transcriptionist
Multimedia Artist, Animator
Network Systems and Data Communication Analyst
Paralegal
Receptionist
Records Processing Assistant
Software Test Engineer
Systems Analyst
Technical Writer
Word Processor

Pathway: Network Systems

Computer Operator
Computer Security Specialist
Computer Software Engineer
Computer Support Specialist
Computer Systems Engineer, Architect
Computer and Information Systems Administrator
Database Analyst
Network Architect
Network Systems and Data Communication Analyst
Network and Computer Systems Administrator
Radio, TV Broadcast Technician
Software Test Engineer
Sound Engineering Technician
Systems Analyst
Telecommunications Equipment Installer, Repairer
Telecommunications Specialist

Pathway: Programming and Software Development

Applications Integrator
Computer Software Engineer
Game Designer, Programmer
Multimedia Artist, Animator
Network Systems and Data Communication Analyst

Pathways and Job Title Samples

Pathway: Programming and Software Development *continued*

Programmer
Project Manager
Software Applications Engineer
Software Test Engineer
Systems Analyst
Web Developer

Pathway: Web and Digital Communications

Applications Integrator
Computer Support Specialist
Computer Systems Engineer, Architect
Game Designer, Programmer
Graphic Designer
Instructional Coordinator
Multimedia Artist, Animator
Project Manager
Radiologic Technologist, Radiographer
Software Test Engineer
Systems Analyst
Web Developer
Webmaster

Considerations

- Once workers are hired, they will need to keep retraining and re-tooling. The specialists today will be obsolete tomorrow unless they work to keep up with advancements in technology.
- Computer specialists accounted for 55 percent of the jobs in this cluster in 2008.
- Information technology is expected to be among the fastest growing industries in the economy.
- Relevant work experience and a bachelor's degree are prerequisites for many jobs; for more complex jobs, a graduate degree is preferred. Individuals with an advanced degree in computer science, computer engineering, or an MBA with a concentration in information systems should find very favorable employment prospects.
- Computer professionals who can combine strong technical skills with good interpersonal and business skills and graduates with non-computer science degrees who have had courses in computer science and other information technology areas should continue to find jobs as computer professionals.
- The potential to work from home is also attractive for those pursuing the IT field. Remote devices and telecommuting will enable more and more people to work at home.

Discussion Questions

What makes Northern Virginia an attractive location for the IT industry?

What is computer networking? Bandwidth? Fiber optics?

What is the impact of PDAs and "smart" phones?

What are some functions you can perform from a home computer that would not have been available 10 years ago?

What are several ways IT has revolutionized the workplace?

What are some current online safety issues?

If you had the choice, would you rather work from home? Why, or why not?

What are some pros and cons of telecommuting?

What are some developing trends in information technology?

Law, Public Safety, Corrections & Security

Inside Track

Those pursuing occupations in the Law, Public Safety, Corrections, and Security career cluster are normally good communicators and demonstrate keen inductive reasoning skills. Occupations within this cluster deal with police work, the law and legal services, the judicial system, the study and detention of criminals, and fire protection. Workers are often attracted to social structure and living within a moral/professional code. Lawyers and judges are often achievement-driven and value variety and social contact and recognition, while firefighters and police officers are often motivated by a sense of valor, responsibility, justice, and adventure.

Trends

Employment of police and detectives is expected to grow by 10 percent over the 2008–2018 decade. Overall, opportunities in local police departments will be favorable for individuals who meet the psychological, personal, and physical qualifications. Jobs in local police departments that offer relatively low salaries and those in urban communities in which the crime rate is relatively high may be the easiest to get. Bilingual applicants with military experience or college training in police science will have the best opportunities in local and state departments. Bilingual applicants with a bachelor's degree and several years of law enforcement or military experience, especially investigative experience, will have the best opportunities in federal agencies.

Employment of firefighters is expected to grow by 19 percent over the 2008–2018 decade. Most of this job growth will result from volunteer firefighting positions being converted to paid positions in growing suburban areas.

Employment of lawyers is expected to grow by 13 percent during the 2008–2018 decade. A significant number of attorneys are employed at the various levels of government. Some work for state attorneys general, prosecutors, and public defenders in criminal courts. At the federal level, attorneys investigate cases for the U.S. Department of Justice and other agencies. Government lawyers also help develop programs, draft and interpret laws and legislation, establish enforcement procedures, and argue civil and criminal cases on behalf of the government. Employment of paralegals and legal assistants is projected to grow by 28 percent between 2008 and 2018. Employers are trying to reduce costs and increase the availability and efficiency of legal services by hiring paralegals to perform tasks once done by lawyers.

Court reporters usually create verbatim transcripts of speeches, conversations, legal proceedings, meetings, and other events. Court reporters play a critical role not only in judicial proceedings, but also at every meeting where the spoken word must be preserved as a written transcript. They are responsible for ensuring a complete, accurate, and secure legal record. Employment of court reporters is projected to grow by 18 percent, faster than the average for all occupations between 2008 and 2018.

Pathways and Job Title Samples

Pathway: Correction Services

Corrections Officer
Probation, Parole Officer

Pathway: Emergency and Fire Management Services

Dispatcher
Emergency Medical Technician (EMT),
Paramedic
Firefighter
Fire Investigator
Hazardous Materials Removal Worker

Pathway: Law Enforcement Services

Customs Inspector
Forensic Science Technician
Police Officer
Private Detective, Investigator
U.S. Marshal

Pathway: Legal Services

Administrative Assistant
Arbitrator
Attorney
Court Reporter
Customer Service Representative
Legal Assistant
Office Manager
Paralegal
Receptionist
Records Processing Assistant

Pathway: Security and Protective Services

Private Detective, Investigator
Security Officer

Considerations

- The biggest concern to most considering a job in public safety is the personal safety factor. Police and fire protection work can be dangerous and extremely stressful. These workers are expected to exercise authority when necessary and to be alert at all times, whether on- or off-duty.
- In addition to the obvious dangers and the public profile officers must maintain in their communities, many of these men and women regularly witness death and suffering resulting from accidents and criminal behavior.
- Fire protection professionals also have to maintain a necessary objectiveness for the same reasons. A career in law enforcement and fire protection may take a serious toll on officers' private lives.
- On the other hand, those involved in these fields enjoy a high level of job security once they are employed. Turnover in police/detective work and fire protection is among the lowest of all occupations.
- Another benefit is the pension, which allows officers to retire after 20–25 years of service.

Discussion Questions

Why has America become more and more litigious?

Can you think of any solutions to the serious issue of overcrowded prisons?

What is your relationship to and perception of the local police?

What are some responsibilities of fire rescue personnel?

What is the Virginia Bar?

What are some famous law schools, lawyers, judges, and court cases?

Inside Track

Those who seek occupations in the Manufacturing career cluster are usually hardworking producers and refiners of physical goods. Perhaps they are attracted to the precision, skill, repetition, and consistency of the tasks routinely involved. Perhaps they feel compelled by the amount of practical, hands-on, daily problem-solving situations they encounter. Or perhaps they are attracted to the sheer ingenuity and efficiency that is so much a part of these jobs. Whatever the case, occupations in manufacturing deal with the process of creating intermediate and finished products beginning with raw materials. Occupations include areas of managing, planning, and performing the production of various items by operating machinery, as well as industrial support activities such as production planning and control and maintenance.

Trends

Overall, employment in manufacturing is predicted to decline, but the ever evolving areas in technology such as computers, semi-conductors, and telecommunications should continue to provide employment opportunities, especially in research and development. Employment prospects are good for highly-skilled technical personnel, but employment of production workers will grow slowly. Assembly and packaging are becoming highly automated or have moved to other countries where the labor is cheap. However, the need for complex electronics manufacturing to be located near its research site may help to moderate the move abroad. One area that is expected to remain steady is food manufacturing, while pharmaceutical and medicine manufacturing will be one of the fastest growing manufacturing industries. Employment is expected to increase through 2018. An area of growth that is likely to breathe new air into the industry is the emerging “green” manufacturing, such as in energy: wind and solar; energy efficient vehicles; energy saving components and machinery; biomaterials; and recycled/reusable packaging.

Considerations

- Workers in the food manufacturing industry link farmers and other agricultural producers with consumers. They do this by processing raw fruits, vegetables, grains, meats, and dairy products into finished goods ready for the grocer or wholesaler to sell to households, restaurants, or institutional food services.
- Even during fluctuating economic conditions, there will be a market for over-the-counter and prescription drugs.
- American companies manufacture and assemble many products abroad because of lower production costs and new trade agreements. However, the growing complexity of some of the most highly technical production processes—semiconductor and electronic component manufacturing in particular—is leading to increased demand for a more highly skilled workforce in the United States.

Pathways and Job Title Samples

Pathway: Health, Safety, and Environmental Assurance

Occupational Health and Safety Specialist
Safety Engineer

Pathway: Logistics and Inventory Control

Dispatcher
Logistician
Material Handler
Shipping and Receiving Clerk

Pathway: Maintenance, Installation, and Repair

Millwright

Pathway: Manufacturing Production Process Development

Electro-Mechanical Technician
Industrial Engineer
Industrial Engineering Technician
Manufacturing Systems Engineer
Millwright
Network Designer
Precision Inspector, Tester, or Grader
Production Manager
Programmer
SPC (Statistical Process Control)
Coordinator

Pathway: Production

Assembler
Automated Manufacturing Technician
Extruding and Drawing Machine Operator
Tool and Die Maker
Welder

Pathway: Quality Assurance

Calibration Technician
Precision Inspector, Tester, or Grader
Quality Control Technician
SPC (Statistical Process Control)
Coordinator

- Electronics manufacturing has become truly global, and it is difficult to characterize many companies and their products as American or foreign.
- Although some of the companies in this industry are large, most are small.
- Production workers need to be able to deal with producing accurately under deadlines and pressure. Research and development people must demonstrate innovative thinking.

Discussion Questions

What are some of the key factors in the emergence of a “green” revolution?

How would you like your life and that of future generations to improve as a result of “green” manufacturing?

How might the growing interest in alternative and more natural medicines affect the pharmaceutical and medicine industry?

How are food manufacturers responding to a population that is seeking more wholesome foods?

On an international level, which nations are the greatest competitors for the U.S. in electronics manufacturing?

Can you name some products you use that are, in part, the result of electronics manufacturing?

Why do electronics manufacturing companies spend so much of their resources on research and development?

Inside Track

Those well-suited to most positions in the Marketing career cluster are typically effective communicators, extremely observant, and skilled at both reading and persuading consumers. Advertising, marketing, promotions, public relations, and sales managers coordinate their companies' market research, marketing strategy, sales, advertising, promotion, pricing, product development, and public relations activities. In small firms, the owner or chief executive officer might assume all advertising, promotions, marketing, sales, and public relations responsibilities. In large firms, which may offer numerous products and services nationally or even worldwide, an executive vice president directs overall advertising, marketing, promotions, sales, and public relations policies.

Trends

Employment of advertising, marketing, promotions, public relations, and sales managers is expected to increase by 13 percent through 2018. Job growth will be spurred by competition for a growing number of goods and services, both foreign and domestic, and the need to make one's product or service stand out in the crowd. In addition, as the influence of traditional advertising in newspapers, radio, and network television wanes, marketing professionals are being asked to develop new and different ways to advertise and promote products and services to better reach potential customers. The hottest trend in retail marketing began two years ago—group coupons, as in Groupon and LivingSocial. It is quite simple; by signing up, subscribers receive an e-mail every morning featuring a local business that offers a product or service at a minimum of 50 percent discount. For merchants, it is about marketing as clients give them a try. In 2008, Groupon had 400 subscribers. It now has 40 million subscribers in 35 countries and 335 cities. Currently, LivingSocial has 10 million members in 5 countries. As for job prospects, advertising, marketing, promotions, public relations, and sales manager jobs are highly coveted and will be sought by other managers or highly experienced professionals, resulting in keen competition.

Considerations

- College graduates with related experience, a high level of creativity, strong communication skills, and computer skills should have the best job opportunities.
- A wide range of educational backgrounds is suitable for entry into advertising, marketing, promotions, public relations, and sales manager jobs, but many employers prefer college graduates with experience in related occupations.
- Employers will seek those who have the computer skills to conduct advertising, marketing, promotions, public relations, and sales activities on the Internet.

Pathways and Job Title Samples

Pathway: Marketing Communications

Advertising Account Executive
Advertising and Promotions Manager
Art Director
Copy Writer
International Merchandising Manager
Marketing Communication Manager
Marketing Manager
Media Planner, Buyer
Multimedia Artist, Animator
Public Information Director
Public Relations Manager
Public Relations Specialist
Sales Manager
Trade Show Manager
Web Developer

Pathway: Marketing Management

Advertising and Promotions Manager
Art Director
Brand Manager
Chief Executive Officer
Entrepreneur
Franchisee
General Manager
Internet Entrepreneur
Marketing Communication Manager
Marketing Manager
Media Planner, Buyer
Multimedia Artist, Animator
Public Information Director
Public Relations Manager
Retail Manager
Shipping and Receiving Clerk

Pathway: Marketing Research

Brand Manager
Database Administrator
Market Research Analyst
Merchandising Coordinator
Product Planner

Pathway: Merchandising

Account Executive
Customer Service Representative
Merchandise Buyer
Merchandise Displayer, Window Trimmer
Merchandise Manager
Merchandise Coordinator
Operations Manager
Retail Manager

Pathway: Professional Sales

Account Executive
Entrepreneur
Human Resources Manager
Investment Banker
Manufacturer's Sales Representative
Media Planner, Buyer

Pathways and Job Title Samples

Pathway: Professional Sales *continued*

Multimedia Artist, Animator
Property, Real Estate, and Community
Association Manager
Real Estate Appraiser
Real Estate Broker
Real Estate Sales Agent
Sales Manager
Salesperson
Telemarketer
Trade Show Manager
Wholesale and Manufacturing, Technical
and Scientific Products Representative

- High earnings, substantial travel, and long hours, including evenings and weekends, are common.
- Advertising, marketing, promotions, public relations, and sales managers direct the sale of products and services offered by their firms and the communication of information about their firms' activities.
- Other workers involved with advertising, marketing, promotions, public relations, and sales include actors, producers, and directors; advertising sales agents; artists and related workers; demonstrators, product promoters, and models; market and survey researchers; public relations specialists; sales representatives, wholesale and manufacturing; and writers and editors.

Discussion Questions

What high school courses can you take to prepare you to follow a pathway in the marketing cluster?

What entry-level jobs in the marketing cluster can help you as you pursue your education?

How might experience in entry-level jobs lead you to a career in the marketing cluster?

What are some of your favorite local retailers, and why do you like them?

How would you improve the marketing and advertising for some local and well-known establishments?

What do you think of the service you receive in your average retail shopping experience? Would you render service differently? If so, how?

Have you purchased products or services from Groupon or LivingSocial? What are your impressions?

What do these group coupon companies teach you about ingenuity? About marketing?

Science, Technology, Engineering & Mathematics

Inside Track

Those attracted to professions in the Science, Technology, Engineering, and Mathematics career cluster are often extremely analytical and driven to structured and logical-thinking environments. They enjoy solving puzzles, finding solutions to problems, and overcoming obstacles. Educational programs and occupations in this career cluster deal with engineering, related technologies, scientific research, and application of scientific principles in all the natural sciences (e.g., biology, chemistry, earth science, physics) and social sciences (e.g., economics, sociology, geography, archeology, anthropology).

Note: If a student cannot locate a job title he or she is searching for in the sidebar to the right, that listing may be found in a related career cluster.

Trends

Employment of science technicians is projected to grow by 12 percent during the 2008–2018 decade, although employment change will vary by specialty. Job opportunities are expected to be best for graduates of applied science technology programs who are well trained on equipment used in laboratories or production facilities.

Geoscientists and hydrologists study the Earth's geologic past and present by using sophisticated instruments to analyze the composition of earth, rock, and water. Many geoscientists and hydrologists help to search for natural resources such as groundwater, minerals, metals, and petroleum. Others work closely with environmental and other scientists to preserve and clean up the environment. Employment growth of 18 percent is expected for geoscientists and hydrologists between 2008 and 2018. The need for energy, environmental protection, and responsible land and water management will spur employment demand.

Engineering employment is expected to grow by 11 percent over the 2008–2018 decade but will vary by specialty. A bachelor's degree in engineering is required for most entry-level jobs. Starting salaries are among the highest of all college graduates. Continuing education is critical for engineers as technology evolves.

Employment of environmental scientists and specialists is expected to increase by 28 percent between 2008 and 2018, much faster than the average for all occupations. Job growth should be strongest in private-sector consulting firms. Growth in employment will be spurred largely by the increasing demands placed on the environment by population growth and increasing awareness of the problems caused by environmental degradation. Further demand should result from the need to comply with complex environmental laws and regulations, particularly those regarding ground-water decontamination and clean air. Much job growth will result from a continued need to monitor the quality of the environment, to interpret the impact of human actions on terrestrial and aquatic ecosystems, and to develop strategies for restoring ecosystems. In addition, environmental scientists will be needed to help planners develop and construct buildings,

Pathways and Job Title Samples

Pathway: Engineering and Technology

Aerospace Engineer
Aerospace Engineering Technician
Agricultural Engineer
Architect
Assembler
Biomedical Engineer
Chemical Engineer
Civil Engineer
Civil Engineering Technician
Commercial and Industrial Designer
Computer Hardware Engineer
Computer Programmer
Computer Software Engineer
Electrical Engineer
Electrical Engineering Technician
Electro-Mechanical Technician
Electronics Engineering Technician
Engineer
Engineering Manager
Engineering Technician
Environmental Engineer
Human Factors Engineer
Industrial Engineer
Industrial Engineering Technician
Landscape Architect
Machine Setter, Operator
Manufacturing Systems Engineer
Marine Engineer
Materials Engineer
Mechanical Drafter
Mechanical Engineer
Mechanical Engineering Technician
Network Systems and Data
Communication Analyst
Network and Computer Systems Administrator
Nuclear Engineer
Petroleum Engineer
Power Systems Engineer
Production, Planning, Expediting Clerk
Project Manager
Quality Engineer
Quality Technician
Statistician
Stockroom, Warehouse, or Storage Yard
Stock Clerk
Systems Analyst
Technical Writer
Telecommunications Specialist
Transportation Manager

Pathway: Science and Mathematics

Animal Nutritionist
Animal Scientist
Atmospheric Scientist
Biologist
Botanist
Ecologist

Pathways and Job Title Samples

Pathway: Science and Mathematics

continued

Economist
Environmental Scientist
Geoscientist
Hydrologist
Materials Engineer
Materials Scientist
Oceanographer
Plant Biologist
Plant Breeder and Geneticist
Plant Pathologist
Research Chemist
Secondary School Teacher
Technical Writer
Toxicologist
Veterinarian
Veterinary Assistant

transportation corridors, and utilities that protect water resources and reflect efficient and beneficial land use.

Employment of mathematicians is expected to increase by 22 percent during the 2008–2018 decade, which is much faster than average for all occupations. Advancements in technology usually lead to expanding applications of mathematics, and more workers with knowledge of mathematics will be required in the future. However, jobs in industry and government often require advanced knowledge of related scientific disciplines in addition to mathematics. The most common fields in which mathematicians study and find work are computer science and software development, physics, engineering, and operations research. Many mathematicians also are involved in financial analysis and in life sciences research.

Considerations

- Science technicians help invent and improve products and processes: set up, operate, and maintain laboratory instruments; monitor experiments; make observations; calculate and record results; and often develop conclusions. These are the hands-on, practical workers of the science trades.
- Engineering technicians who work in research and development build or set up equipment; prepare and conduct experiments; collect data; calculate or record results; and help engineers or scientists in other ways, such as making prototypes of newly designed equipment. They also assist in design work, often using computer-aided design and drafting (CADD) equipment.

Discussion Questions

What are the exciting new industries within scientific research and engineering?

Can you name some other career clusters in which you might find job titles that also fall under scientific research and engineering?

What is genome science?

What are some effects of scientific research and engineering in your daily life?

What are the names of some companies or agencies that participate primarily in the scientific research and engineering field?

Transportation, Distribution & Logistics

Inside Track

Those interested in pursuing occupations in the Transportation, Distribution, and Logistics career cluster are usually practical, hands-on, problem solvers. They tend to be independent and value their solitude. They deal with physical materials and are adept at physical labor. Occupations in the cluster are diverse and deal with planning and managing the movement of people, materials, and goods by road, pipeline, air, rail, and water. Services include related professional and technical support services, such as transportation planning and management, logistics services, and mobile equipment and facility maintenance.

The rapid development of air transportation has increased the mobility of the population and created thousands of job opportunities. Air transportation includes taxi companies, commuter airlines, courier services, and commercial airlines.

Truck drivers hold one-half of all trucking and warehousing jobs and provide the crucial link between manufacturers and consumers. The growth of logistics services has blurred the distinction between trucking and warehousing. Logistics services include the distribution of goods, such as inventory control and management, order entry and fulfillment, labeling, light assembly, packaging, and price marking. This industry includes two distinct segments: local and long-distance trucking and terminals, and public warehousing and storage. Some local truck transportation firms also take on sales and customer relations responsibilities, in addition to delivering the firm's products.

Trends

Air transportation plays an integral role in our way of life. Commercial airlines allow millions of Americans every year to attend business conventions, visit family/relatives/friends, take vacations around the globe, or travel to other important events. Air transportation also represents the fastest way to ship most types of cargo over long distances. Wage and salary jobs in the air transportation industry are projected to increase by seven percent over the 2008–2018 period. However, the number of job openings may vary from year to year, because the demand for air travel—particularly pleasure travel, a discretionary expense—fluctuates with the economy. In the long run, passenger and cargo traffic is expected to continue expanding in response to increases in population, income, and business activity. Job prospects will continue to be better in regional and low-cost carriers than in major airlines, where competition for many jobs is keen.

One of the main factors influencing employment in the truck transportation and warehousing industry is the state of the national economy. As the national economy grows and the production and sales of goods increases, there is an increase in the demand for transportation services to move goods from their producers to consumers. During economic downturns, the truck transportation and warehousing industry is one of the first to slow down as orders for goods and shipments decline. The number of wage and salary jobs in the

Pathways and Job Title Samples

Pathway: Facility and Mobile Equipment Maintenance

Aircraft Mechanic and Service Technician
Aircraft Structure, Surfaces, Rigging, and Systems Assembler
Automotive Body and Related Repairer
Automotive Glass Installer and Repairer
Automotive Service Technician, Mechanic
Diesel Service Technician
Electrical and Electronic Installer
Electrical and Electronic Repairer
Marine Watercraft Repair and Maintenance Worker
Motorboat Mechanic
Service Technician
Small Engine Mechanic

Pathway: Logistics Planning and Management Services

Logistics Analyst
Logistics Engineer
Logistics Manager

Pathway: Transportation Operations

Air Traffic Controller
Aircraft Mechanic and Service Technician
Flight Engineer
Motorboat Operator
Pilot
Ship Engineer
Transportation Manager

Pathway: Transportation Systems/Infrastructure Planning, Management

Aerospace Engineer
Civil Engineer
Civil Engineering Technician
Pilot
Traffic Engineer
Traffic Technician
Transportation Manager
Urban, Regional Planner

Pathway: Warehousing and Distribution Center Operations

Traffic Engineer
Transportation Manager

truck transportation and warehousing industry is expected to grow by 11 percent from 2008 through 2018. Job opportunities are expected to be favorable, especially for truck drivers.

Employment in the railroad transportation industry is expected to increase by 9 percent from 2008 through 2018. This will largely be the result of expected increases in the demand for freight and passenger rail transportation as fuel costs increase and rail becomes a cheaper alternative to trucks and automobiles. Despite the slowdown in the economy, freight transportation should continue to expand in the long term as global trade expands and rail freight benefits from the shipment of more goods.

Considerations

- Flight crews, especially those on international routes, often suffer jet lag—disorientation and fatigue caused by flying into different time zones. Some personnel may work under pressure to meet flight schedules. Still, the pay is relatively good throughout the industry, and the benefits of travel are enticing for many.
- Truck drivers must cope with a variety of working conditions including variable weather and traffic conditions, boredom, and fatigue. Drivers frequently travel at night, on holidays, and during weekends to avoid traffic delays and to deliver cargo on time. Truck driving pays relatively well, but many persons leave the career because of the lengthy periods away from home and the long hours of driving.
- Stricter requirements for obtaining—and keeping—a commercial driver’s license also make truck driving more difficult as a career.
- Experienced and reliable truck drivers with good driving records receive better pay as well as more desirable routes, schedules, or loads. Because of increased competition for experienced drivers, some larger companies are luring these drivers with higher wages, signing bonuses, and preferred assignments. Some trucking firms hire only experienced drivers.

Discussion Questions

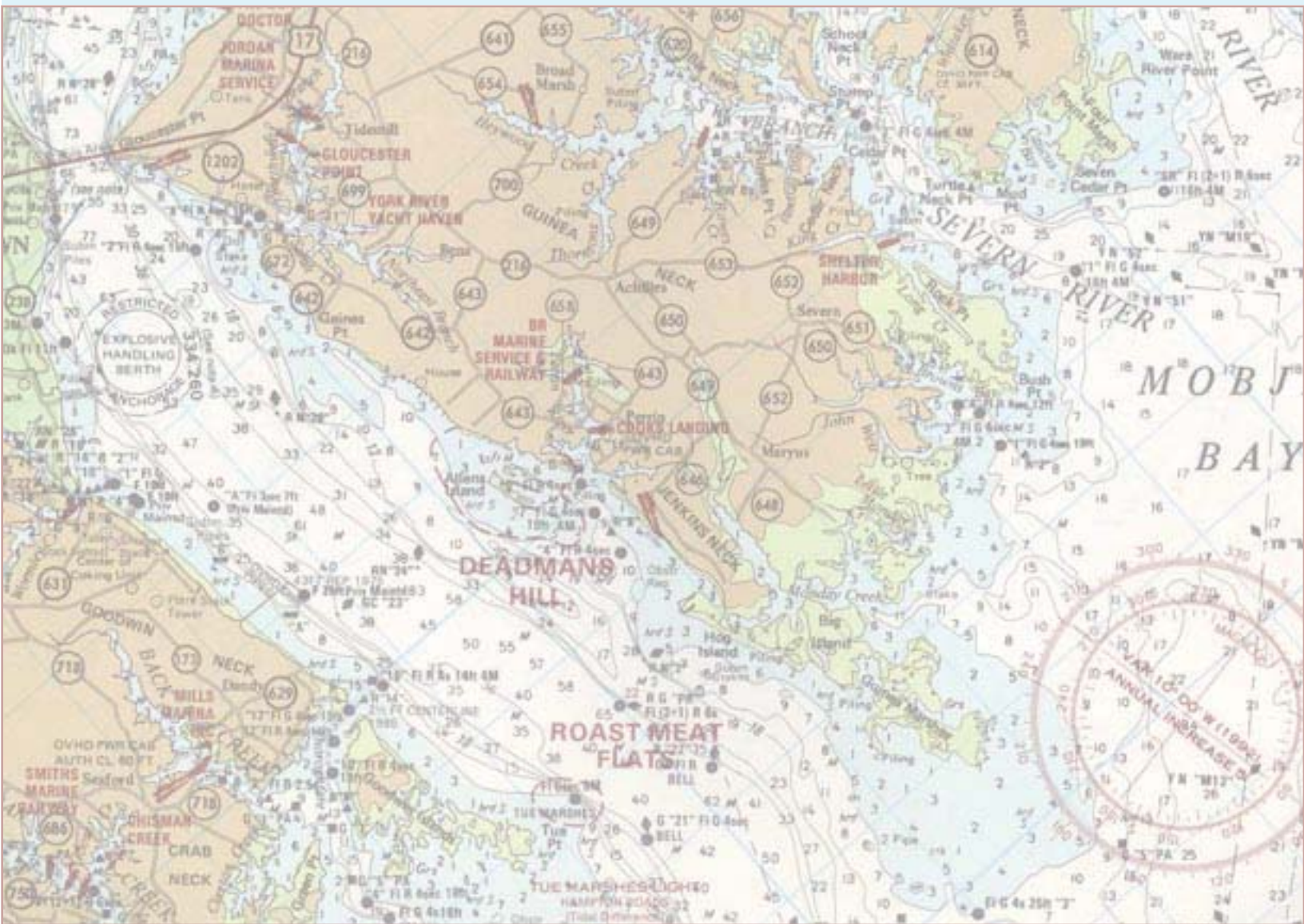
How has technology affected this career cluster?

Can you name some pros and cons of becoming a member of a flight crew?

Why has passenger train travel increased?

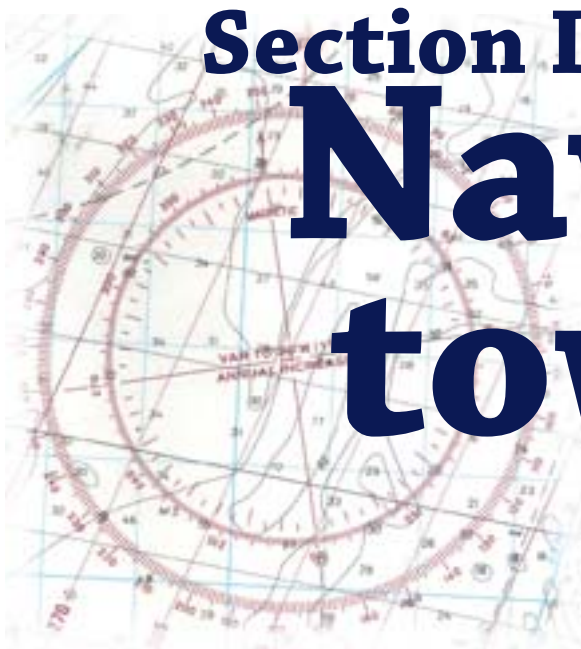
What is mass transit, and how can it benefit the United States?

What are examples of countries who use mass transit successfully?



Section III:

Navigating toward my Future



Investigating the Career Cluster

Based on what the students learned about themselves through this unit, they are probably finding themselves gravitating to one or more of the 16 career clusters. The next step is to synthesize their personal information with career discovery.

The first activity, **Similar Characteristics Occupations**, highlights an important factor for students to consider: a strong personal characteristic, such as attentiveness or endurance, can lead to dissimilar careers in different clusters. The second activity, **Career Cluster**, asks the students general career cluster questions that can be applied regardless of their choice. **Career Exploration** is based on Web site research. The duration for student research is flexible. These summarize the unit and lead to the last item, a student checklist: **The Next Step**.

Activity: Similar Characteristics Occupations

Have students visit One-Stop Career System Multimedia Career Video List at http://web1.dol.state.nj.us/coei/CareerVideos/careervideos_list.html. Have them scroll to the last section: "Similar Characteristics Occupations," and view several videos. This activity illustrates that skill sets can cross a wide variety of careers. For example, if a person has strong attentiveness skills, he/she has a good chance of success in careers as varied as crime investigator, pharmacist, nurse, musician, welder, or referee. All of these require attentiveness.

Activity: Career Cluster

Divide students into groups corresponding to their career cluster of choice. Students should have their job titles in mind but remain focused on studying the career cluster to make a group presentation.

Students should choose at least three different pathways within the cluster and use that information when analyzing the following:

1. *Define the essence of the career cluster. What is the essential connection that links every job title in the cluster?*
2. *Name some traditional pathways within the cluster.*
3. *Name some new, contemporary, or recently revitalized industry groups within the cluster.*
4. *List some job titles in the cluster that interest you.*
5. *List some job titles that might be listed in another cluster as well as the one under examination.*
6. *List some exciting new job titles within the cluster.*

7. *Predict the future for the cluster. Is it gaining or losing importance? Justify your answer.*
8. *Select four job titles within the cluster. List some industry trends both on a national and state level. Make projections based on history and/or other reliable sources. Address the following issues:*
 - *salary*
 - *openings/closings*
 - *job security*
 - *job longevity*
9. *List any environmental concerns, such as*
 - *weather issues*
 - *political climate*
 - *economy*
 - *consumer trends.*

Career Exploration

To be completed by student....

1. Explore the following Web sites. You may decide that you are partial to one Web site, or you may want to combine elements of different ones. Take a self-assessment survey; investigate various career clusters, areas, and roles; and examine the related education and training. Take good notes of your exploration to use for your essay and for “The Next Step” activity. It would be a good idea to read “The Next Step” activity before beginning your search so you will know some of the questions you will need to answer.

KnowHowVirginia

www.knowhowvirginia.org

Occupational Outlook Handbook, 2010–2011 Edition

www.bls.gov/oco

Virginia Career VIEW

www.vacareerview.org

Virginia Education Wizard

www.vawizard.org

CTECS and Career Clusters

www.ctecs.org/careerclusters.htm

2. Narrow your research to one job title.
3. Based on your research, write an essay regarding your job title search. Use the first-person point of view. In your essay, address the following in the order below:
 - a. Introduce the career cluster and your job title.
 - b. Describe your search. How did it go?
 - c. Describe the education requirements and how you think you will meet them.
 - d. Do the same for job-skills training.
 - e. Describe your strengths—things that would make you a “good fit” for the job you want.
 - f. Describe your weaknesses—things that would make both getting and keeping the job difficult.
 - g. Did you learn anything new about your potential career? If so, what? If not, why not?
 - h. Overall, consider the positive and negative aspects of your potential career choice. Do you think you are well suited for this job? Why, or why not?

The Next Step

To be completed by student....

Based on your research and what you know about your future, make some immediate plans that could help you jump into a career and land the job you want. Check all that apply.

EDUCATION

1. What education path do you plan to pursue?
 - high school only/GED
 - high school/Career and Technical Education (CTE) program in your field of study
 - community college
 - traditional four-year university
 - master's degree
 - higher

JOB TRAINING

2. How will you learn job skills?
 - friends/family members
 - current/future co-workers
 - internship/mentorship/apprenticeship
 - co-op education
 - Career and Technical Education (CTE)
 - entry-level job in the field
 - military
 - Peace Corps
 - other (please list) _____

CAREER EDUCATION

3. From which source(s) will you seek help with career planning?
 - friends/family members
 - teachers
 - r u ready?*
 - counselors
 - employment agency, professional
 - employment agency, government
 - other community institution (please name) _____
 - self-directed online search
 - other research methods (please name) _____
 - do not plan to investigate career options (please give reason) _____
 - need no further guidance (please give reason) _____
4. List some entry-level job titles that might help you get closer to the job you are seeking.

5. Name some industry trends (e.g., salary, openings/closings, job security, job longevity) in the career cluster that interests you.

National-level

Virginia

6. List any environmental concerns, as in relating to surroundings (e.g., weather, political climate, economy, consumer trends), that may affect your potential job.
7. What do you feel is the largest obstacle that may prevent you from getting the career you seek?
8. What are your biggest misgivings about the career field/job you wish to enter?
9. Which personality trait(s) will help you make the transition into your career role?
10. Would you like to set an appointment to speak with a school counselor regarding your career plans?
- Yes
- No

11. Contact Information (all answers optional)

Name:

Grade level:

Phone number:

E-mail:

Student identification number:

Related Academic Standards of Learning

Academic Standards of Learning are an essential component of career and technical education and are required to be successful in an occupational field. The identification of related academic Standards of Learning that are reinforced through application in career and technical courses supports and enhances academic instruction.

Instruction in Career Connections programs and courses incorporates and reinforces Virginia Standards of Learning as stated in Standards of Learning for Virginia Public Schools. Identified on the following pages are specific Standards of Learning that are reinforced through discussions and activities in *ready or not*. Local school divisions may wish to identify additional Standards of Learning as reflected in instructional activities and cooperative efforts with other disciplines.

English

Oral Language

10.1 The student will participate in and report on small-group learning activities.

- a) Assume responsibility for specific group tasks.
- b) Participate in the preparation of an outline or summary of the group activity.
- c) Include all group members in oral presentation.
- d) Use grammatically correct language, including vocabulary appropriate to the topic, audience, and purpose.

10.2 The student will critique oral reports of small-group learning activities.

- a) Evaluate one's own role in preparation and delivery of oral reports.
- b) Evaluate effectiveness of group process in preparation and delivery of oral reports.

Oral Language

11.1 The student will make informative and persuasive presentations.

- a) Gather and organize evidence to support a position.
- b) Present evidence clearly and convincingly.
- c) Support and defend ideas in public forums.
- d) Use grammatically correct language, including vocabulary appropriate to the topic, audience, and purpose.

11.2 The student will analyze and evaluate informative and persuasive presentations.

- a) Critique the accuracy, relevance, and organization of evidence.
- b) Critique the clarity and effectiveness of delivery.

Reading Analysis

10.4 The student will read and interpret informational materials.

- a) Analyze and apply the information contained in warranties, contracts, job descriptions, technical descriptions, and other informational

sources, including labels, warnings, manuals, directions, applications, and forms, to complete specific tasks.

- b) Skim manuals or informational sources to locate information.
- c) Compare and contrast product information contained in advertisements with that found in instruction manuals and warranties.

Reading Analysis

11.4 The student will read and analyze a variety of informational materials.

- a) Use information from texts to clarify or refine understanding of academic concepts.
- b) Read and follow directions to complete an application for college admission, for a scholarship, or for employment.
- c) Apply concepts and use vocabulary in informational and technical materials to complete a task.
- d) Generalize ideas from selections to make predictions about other texts.
- e) Analyze information from a text to draw conclusions.

Writing

10.7 The student will develop a variety of writing, with an emphasis on exposition.

- a) Generate, gather, plan, and organize ideas for writing.
- b) Elaborate ideas clearly through word choice and vivid description.
- c) Write clear, varied sentences.
- d) Organize ideas into a logical sequence.
- e) Revise writing for clarity of content and presentation.
- f) Proofread and prepare final product for intended audience and purpose.

Writing

11.7 The student will write in a variety of forms, with an emphasis on persuasion.

- a) Generate, gather, plan, and organize ideas for writing.
- b) Develop a focus for writing.
- c) Evaluate and cite applicable information.
- d) Organize ideas in a logical manner.
- e) Elaborate ideas clearly and accurately.
- f) Adapt content, vocabulary, voice, and tone to audience, purpose, and situation.
- g) Revise writing for accuracy and depth of information.
- h) Proofread final copy and prepare document for intended audience and purpose.

Research

10.11 The student will collect, evaluate, organize, and present information.

- a) Organize information from a variety of sources.
- b) Develop the central idea or focus.
- c) Verify the accuracy and usefulness of information.
- d) Credit sources for both quoted and paraphrased ideas.
- e) Present information in an appropriate format, such as an oral presentation, written report, or visual product.
- f) Use technology to access information, organize ideas, and develop writing.

Research

11.10 The student will analyze, evaluate, synthesize, and organize information from a variety of sources to produce a research product.

- a) Narrow a topic.
- b) Develop a plan for research.
- c) Collect information to support a thesis.
- d) Evaluate quality and accuracy of information.
- e) Synthesize information in a logical sequence.
- f) Document sources of information, using a style sheet, such as that of the Modern Language Association (MLA) or the American Psychological Association (APA).
- g) Edit writing for clarity of content and effect.
- h) Edit copy for grammatically correct use of language, spelling, punctuation, and capitalization.
- i) Proofread final copy and prepare document for publication or submission.
- j) Use technology to access information, organize ideas, and develop writing.

Oral Language

12.1 The student will make a 5 to 10 minute formal oral presentation.

- a) Choose the purpose of the presentation: to defend a position, to entertain an audience, or to explain information.
- b) Use a well-structured narrative or logical argument.
- c) Use details, illustrations, statistics, comparisons, and analogies to support purposes.
- d) Use visual aids or technology to support presentation.
- e) Use grammatically correct language, including vocabulary appropriate to the topic, audience, and purpose.

12.2 The student will evaluate formal presentations.

- a) Critique relationships among purpose, audience, and content of presentations.
- b) Critique effectiveness of presentations.

Reading Analysis

12.4 The student will read and analyze a variety of informational materials, including electronic resources.

- a) Identify formats common to new publications and information resources.
- b) Recognize and apply specialized informational vocabulary.
- c) Evaluate a product based on analysis of the accompanying warranty and instruction manual.
- d) Evaluate the quality of informational and technical materials.

Writing

12.7 The student will develop expository and informational writings.

- a) Generate, gather, and organize ideas for writing.
- b) Consider audience and purpose when planning for writing.
- c) Write analytically about literary, informational, and visual materials.
- d) Elaborate ideas clearly and accurately.
- e) Revise writing for depth of information and technique of presentation.
- f) Apply grammatical conventions to edit writing for correct use of language, spelling, punctuation, and capitalization.
- g) Proofread final copy and prepare document for publication or submission.

History and Social Science

VS.1 The student will demonstrate skills for historical and geographical analysis and responsible citizenship, including the ability to

- a) identify and interpret artifacts and primary and secondary source documents to understand events in history;
- b) determine cause-and-effect relationships;
- c) compare and contrast historical events;
- d) draw conclusions and make generalizations;
- e) make connections between past and present;
- f) sequence events in Virginia history;
- g) interpret ideas and events from different historical perspectives;
- h) evaluate and discuss issues orally and in writing;
- i) analyze and interpret maps to explain relationships among landforms, water features, climatic characteristics, and historical events.

Virginia: 1900 to the Present

VS.10 The student will demonstrate knowledge of government, geography, and economics by

- a) identifying the three branches of Virginia government and the function of each;
- b) describing the major products and industries of Virginia's five geographic regions;
- c) explaining how advances in transportation, communications, and technology have contributed to Virginia's prosperity and role in the global economy.

The United States since World War II

USII.7 The student will demonstrate knowledge of the economic, social, and political transformation of the United States and the world between the end of World War II and the present by

- a) describing the rebuilding of Europe and Japan after World War II, the emergence of the United States as a superpower, and the establishment of the United Nations;
- b) describing the conversion from a wartime to a peacetime economy;
- c) identifying the role of America's military and veterans in defending freedom during the Cold War, including the wars in Korea and Vietnam, the Cuban missile crisis, the collapse of communism in Europe, and the rise of new challenges;
- d) describing the changing patterns of society, including expanded educational and economic opportunities for military veterans, women, and minorities.

Civics and Economics

CE.4 The student will demonstrate knowledge of personal character traits that facilitate thoughtful and effective participation in civic life by

- a) practicing trustworthiness and honesty;
- b) practicing courtesy and respect for the rights of others;
- c) practicing responsibility, accountability, and self-reliance;
- d) practicing respect for the law;
- e) practicing patriotism;
- f) practicing decision making;
- g) practicing service to the school and/or local community.

CE.11 The student will demonstrate knowledge of how economic decisions are made in the marketplace by

- a) applying the concepts of scarcity, resources, choice, opportunity cost, price, incentives, supply and demand, production, and consumption;
- b) comparing the differences among traditional, free market, command, and mixed economies;
- c) describing the characteristics of the United States economy, including limited government, private property, profit, and competition.

CE.12 The student will demonstrate knowledge of the structure and operation of the United States economy by

- a) describing the types of business organizations and the role of entrepreneurship;
- b) explaining the circular flow that shows how consumers (households), businesses (producers), and markets interact;
- c) explaining how financial institutions channel funds from savers to borrowers;
- d) examining the relationship of Virginia and the United States to the global economy, with emphasis on the impact of technological innovations.

CE.11 The student will demonstrate knowledge of the role of government in the United States economy by

- a) examining competition in the marketplace;
- b) explaining the creation of public goods and services;
- c) describing the impact of taxation, including an understanding of the reasons for the 16th amendment, spending, and borrowing;
- d) explaining how the Federal Reserve System regulates the money supply;
- e) describing the protection of consumer rights and property rights.

CE.14 The student will demonstrate knowledge of personal finance and career opportunities by

- a) identifying talents, interests, and aspirations that influence career choice;
- b) identifying attitudes and behaviors that strengthen the individual work ethic and promote career success;
- c) identifying abilities, skills, and education and the changing supply and demand for them in the economy;
- d) examining the impact of technological change and globalization on career opportunities;
- e) describing the importance of education to lifelong personal finances;
- f) examining the financial responsibilities of citizenship, including evaluating common forms of credit, savings, investments, purchases, contractual agreements, warranties, and guarantees.

Era VIII: The Post War Period, 1945 to the Present

WHII.12 The student will demonstrate knowledge of major events and outcomes of the Cold War by

- a) explaining key events of the Cold War, including the competition between the American and Soviet economic and political systems and the causes of the collapse of Communism in the Soviet Union and Eastern Europe;
- b) assessing the impact of nuclear weaponry on patterns of conflict and cooperation since 1945;
- c) describing conflicts and revolutionary movements in eastern Asia, including those in China and Vietnam, and their major leaders, i.e., Mao Tse-tung (Zedong), Chiang Kai-shek, and Ho Chi Minh.

WHII.15 The student will demonstrate knowledge of cultural, economic, and social conditions in developed and developing nations of the contemporary world by

- a) identifying contemporary political issues, with emphasis on migrations of refugees and others, ethnic/religious conflicts, and the impact of technology, including chemical and biological technologies;
- b) assessing the impact of economic development and global population growth on the environment and society, including an understanding of the links between economic and political freedom;

- c) describing economic interdependence, including the rise of multinational corporations, international organizations, and trade agreements.

World Geography

WG.7 The student will identify natural, human, and capital resources and explain their significance by

- a) showing patterns of economic activity and land use;
- b) evaluating perspectives and consequences regarding the use of resources.

WG.9 The student will analyze the global patterns and networks of economic interdependence by

- a) identifying criteria that influence economic activities;
- b) explaining comparative advantage and its relationship to international trade;
- c) describing ways that economic and social interactions have changed over time;
- d) describing and evaluating the formation of economic unions.

The United States since World War II

VUS.14 The student will demonstrate knowledge of economic, social, cultural, and political developments in the contemporary United States by

- a) analyzing the effects of increased participation of women in the labor force;
- b) analyzing how changing patterns of immigration affect the diversity of the United States population, the reasons new immigrants choose to come to this country, and their contributions to contemporary America;
- c) explaining the media influence on contemporary American culture and how scientific and technological advances affect the workplace, health care, and education.

Virginia and United States Government

GOVT.12 The student will demonstrate knowledge of the role of the United States in a changing world by

- a) describing the responsibilities of the national government for foreign policy and national security;
- b) assessing the role played by national interest in shaping foreign policy and promoting world peace;
- c) examining the relationship of Virginia and the United States to the global economy;
- d) examining recent foreign policy and international trade initiatives since 1980.

GOVT.15 The student will demonstrate knowledge of the United States market economy by

- a) assessing the importance of entrepreneurship, the profit motive, and economic independence to the promotion of economic growth;
- b) comparing types of business organizations;
- c) describing the factors of production;
- d) explaining the interaction of supply and demand;
- e) illustrating the circular flow of economic activity;
- f) analyzing global economic trends, with emphasis on the impact of technological innovations.

GOVT.16 The student will demonstrate knowledge of the role of government in the Virginia and United States economies by

- a) analyzing the impact of fiscal and monetary policies on the economy;
- b) describing the creation of public goods and services;
- c) examining environmental issues, property rights, contracts, consumer rights, labor-management relations, and competition in the marketplace.

GOVT.17 The student will demonstrate knowledge of personal character traits that facilitate thoughtful and effective participation in civic life by

- a) practicing trustworthiness and honesty;
- b) practicing courtesy and respect for the rights of others;
- c) practicing responsibility, accountability, and self-reliance;
- d) practicing respect for the law;
- e) practicing patriotism.

Additional Resources

Offices, Virginia

Agriculture

www.doe.virginia.gov/instruction/career_technical/agriculture/index.shtml

Business and Information Technology

http://www.doe.virginia.gov/instruction/career_technical/business_infotech/index.shtml

Career Connections

http://www.doe.virginia.gov/instruction/career_technical/career_connections/index.shtml

Family and Consumer Sciences

http://www.doe.virginia.gov/instruction/career_technical/family_consumer_science/index.shtml

Health and Medical Sciences

http://www.doe.virginia.gov/instruction/career_technical/health_medical_sciences/index.shtml

High Schools That Work

www.doe.virginia.gov/instruction/career_technical/programs/highschools_work/index.shtml

Marketing

www.doe.virginia.gov/instruction/career_technical/marketing/index.shtml

Office of Career and Technical Education Services

www.doe.virginia.gov/instruction/career_technical/index.shtml

State-Recommended Equipment Lists

www.doe.virginia.gov/instruction/career_technical/equipment/index.shtml

Technology

www.doe.virginia.gov/instruction/career_technical/technology/index.shtml

Trade and Industrial

http://www.doe.virginia.gov/instruction/career_technical/trade_industrial/index.shtml

Virginia Department of Education

www.doe.virginia.gov/index.shtml

Offices, United States

U.S. Department of Education

www.ed.gov

U.S. Department of Labor

www.dol.gov

Bureau of Labor Statistics

www.bls.gov

U.S. Office of Vocational and Adult Education

www.ed.gov/about/offices/list/ovae

CTE Resource Center

Career Investigation: Phase I

Career Interpretation: Phase II

Career Application: Phase III

www.cteresource.org/verso2/results?program_area=career_connections&document_type=all&course_codes=&text=

Career Planning Guide (CPG)

www.cteresource.org/cpg

Education for Employment Cooperative

Education I, II

Education for Employment Introduction

Education for Employment Level I, Level II

Entrepreneurship Education Curriculum Guide

Leadership Development Curriculum Guide

www.cteresource.org/verso2/results?program_area=career_connections&document_type=all&course_codes=&text=

Enhancing Workplace Readiness Skills

Teaching Virginia's All Aspects of Industry

www.cteresource.org/verso2/results?program_area=across_the_board&document_type=all&course_codes=&text=

CTE Resource Center Library

Visit the CTE Resource Center library Web site and search "careers": www.cteresource.org/library/index.html

Career-Focused Web Sites

America's Job Bank

www.jobbankinfo.org

bestjobsusa

www.bestjobsusa.com/index.php

Blue Collar and Proud of It

www.bluecollarandproudoft.com

Center for Economic and Policy Studies: VaStat (a variety of online Virginia statistics)

www.coopercenter.org/econ/VASTAT

Careerbuilder.com

www.careerbuilder.com

CareerConnect (Virginia's One-Stop Workforce System)

www.twitter.com/careerconnect

Career Guide to Industries

www.bls.gov/oco/cg

Careers in Government

www.CareersInGovernment.com

CTE Resource Center

www.cteresource.org

Employment and Training Administration

www.doleta.gov

KnowHow Virginia

www.knowhowvirginia.org

Monster Jobs

www.monster.com

Occupational Outlook Handbook

www.bls.gov/oco

O*NET (The Occupational Information Network)

online.onetcenter.org

r u ready?

www.cteresource.org

State Council of Higher Education for Virginia

www.schev.edu

States' Career Clusters

www.careerclusters.org

Trailblazers

www.ctetrailblazers.org

Virginia Community College System

www.vccs.edu

Virginia Career VIEW

www.vacareerview.org

Virginia Education Wizard

www.vawizard.org

Virginia Employment Commission

www.vec.state.va.us

Virginia Workforce Connection

www.vawc.virginia.gov

CTECS and Career Clusters

<http://www.ctecs.org/careerclusters.htm>

Working925.com

www.working925.com

**Virginia CTE Student
Organizations**

Virginia DECA

www.vadeca.org

Virginia FBLA/PBL

www.vafbla-pbl.org

Virginia FCCLA

www.virginiafccla.org

Virginia FFA

www.vaffa.org

Virginia HOSA

www.vahosa.org

Virginia TSA

<http://www.virginiatsa.org/home/>

Virginia SkillsUSA

www.vaskillsusa.org

Virginia's
CTE
Resource Center