

**Job Skills Most Needed Across All Occupations by
Occupational Group**

Job Skills Overview

Job skills are personal abilities that help workers carry out job-related tasks. However, depending on the occupation, the required skills can be very different. For instance, construction workers need a unique set of skills different from accountants, teachers, or production workers.

Some of the most important job skills come as second nature to employees. The ability to listen well, show up to work on time, to take and apply instructions, and to maintain focus for long periods of time are critical to success in almost any workplace. Basic phone courtesy and computer and e-mail skills fall in this category. Most of the time, these sorts of skills are assumed: that is, employers expect employees to have them. People who struggle with these basic skills or job requirements can take part in what is known as "skills workshops." These sorts of workshops are often held at local job centers, community colleges or non-profit centers. These types of skills are not the focus here.

Rather the focus is on the skills that employers list as "required" or "desired" in position announcements and specific to the sort of work at issue. A corporate manager, for instance, may need to demonstrate meeting leadership skills and lawyers will need to show that they are persuasive. Specialized job skills like this can be thought of as adjectives and short phrases describing how successful employees do their jobs.

Fortunately, these required skills can be summarized across different occupational groups. Using data compiled from the Occupational Information Network (ONET), skills can be categorized into four useful groups that can aid in training and career planning and transitions. The four types of job skills discussed here are: Knowledge Areas, General Work Activities, Detail Work Activities, and Tools & Technologies.

A Knowledge Area is a key educational or experience requirement for an occupation (e.g. Computers and Electronics).

General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

In many occupations, prior experience can itself be an essential job skill. People who have held similar jobs in the past are often uniquely qualified to continue, or to expand into new occupations. Many essential at-work skills are transferable to what are called related occupations, which mean that they can easily be applied to a variety of different jobs.

Source: CWIA analysis of the Occupation Information (O*NET) data.

Top 10 Skills by Occupational Group
(Architecture and Engineering Occupations)

31 occupations were analyzed in the Architecture and Engineering occupational group and the knowledge area, "Engineering and Technology," was found needed in 97 percent of all occupations (30/31) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Architecture/Engineering	Engineering and Technology	30	97%
Architecture/Engineering	English Language	30	97%
Architecture/Engineering	Computers and Electronics	29	94%
Architecture/Engineering	Mathematics	29	94%
Architecture/Engineering	Design	28	90%
Architecture/Engineering	Administration and Management	24	77%
Architecture/Engineering	Customer and Personal Service	24	77%
Architecture/Engineering	Physics	23	74%
Architecture/Engineering	Mechanical	22	71%
Architecture/Engineering	Production and Processing	20	65%

31 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Architecture/Engineering	Evaluating Information to Determine Compliance with Standards	31	100%
Architecture/Engineering	Getting Information	31	100%
Architecture/Engineering	Identifying Objects, Actions, and Events	31	100%
Architecture/Engineering	Communicating with Supervisors, Peers, or Subordinates	30	97%
Architecture/Engineering	Making Decisions and Solving Problems	30	97%
Architecture/Engineering	Updating and Using Relevant Knowledge	30	97%
Architecture/Engineering	Analyzing Data or Information	29	94%
Architecture/Engineering	Interacting With Computers	29	94%
Architecture/Engineering	Processing Information	29	94%
Architecture/Engineering	Documenting/Recording Information	28	90%

(Architecture and Engineering Occupations - continued)

32 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Architecture/Engineering	analyze technical data, designs, or preliminary specifications	32	100%
Architecture/Engineering	read technical drawings	32	100%
Architecture/Engineering	communicate technical information	31	97%
Architecture/Engineering	understand engineering data or reports	31	97%
Architecture/Engineering	prepare technical reports or related documentation	30	94%
Architecture/Engineering	use drafting or mechanical drawing techniques	30	94%
Architecture/Engineering	develop plans for programs or projects	27	84%
Architecture/Engineering	evaluate engineering data	27	84%
Architecture/Engineering	examine engineering documents for completeness or accuracy	27	84%
Architecture/Engineering	read blueprints	27	84%
Architecture/Engineering	use technical regulations for engineering problems	27	84%

24 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Architecture/Engineering	Computer aided design CAD software	24	100%
Architecture/Engineering	Spreadsheet software	24	100%
Architecture/Engineering	Word processing software	22	92%
Architecture/Engineering	Analytical or scientific software	21	88%
Architecture/Engineering	Graphics or photo imaging software	20	83%
Architecture/Engineering	Data base user interface and query software	19	79%
Architecture/Engineering	Personal computers	17	71%
Architecture/Engineering	Development environment software	16	67%
Architecture/Engineering	Presentation software	16	67%
Architecture/Engineering	Project management software	15	63%

(Arts, Design, Entertainment, Sports, and Media Occupations)

32 occupations were analyzed in the Arts, Design, Entertainment, Sports, and Media occupational group and the knowledge area, "English Language," was found needed in 84 percent of all occupations (27/32) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Arts/Design/Entertainment/Sports/Media	English Language	27	84%
Arts/Design/Entertainment/Sports/Media	Communications and Media	21	66%
Arts/Design/Entertainment/Sports/Media	Computers and Electronics	19	59%
Arts/Design/Entertainment/Sports/Media	Customer and Personal Service	19	59%
Arts/Design/Entertainment/Sports/Media	Education and Training	17	53%
Arts/Design/Entertainment/Sports/Media	Administration and Management	16	50%
Arts/Design/Entertainment/Sports/Media	Fine Arts	16	50%
Arts/Design/Entertainment/Sports/Media	Clerical	15	47%
Arts/Design/Entertainment/Sports/Media	Sales and Marketing	14	44%
Arts/Design/Entertainment/Sports/Media	Design	13	41%

33 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Arts/Design/Entertainment/Sports/Media	Getting Information	32	97%
Arts/Design/Entertainment/Sports/Media	Thinking Creatively	31	94%
Arts/Design/Entertainment/Sports/Media	Identifying Objects, Actions, and Events	30	91%
Arts/Design/Entertainment/Sports/Media	Communicating with Supervisors, Peers, or Subordinates	27	82%
Arts/Design/Entertainment/Sports/Media	Making Decisions and Solving Problems	27	82%
Arts/Design/Entertainment/Sports/Media	Communicating with Persons Outside Organization	26	79%
Arts/Design/Entertainment/Sports/Media	Establishing and Maintaining Interpersonal Relationships	26	79%
Arts/Design/Entertainment/Sports/Media	Organizing, Planning, and Prioritizing Work	26	79%
Arts/Design/Entertainment/Sports/Media	Updating and Using Relevant Knowledge	26	79%
Arts/Design/Entertainment/Sports/Media	Judging the Qualities of Things, Services, or People	22	67%

(Arts, Design, Entertainment, Sports, and Media Occupations - continued)

34 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Arts/Design/Entertainment/Sports/Media	communicate visually or verbally	20	59%
Arts/Design/Entertainment/Sports/Media	create art from ideas	17	50%
Arts/Design/Entertainment/Sports/Media	make presentations	13	38%
Arts/Design/Entertainment/Sports/Media	use creativity to art or design work	13	38%
Arts/Design/Entertainment/Sports/Media	identify color or balance	12	35%
Arts/Design/Entertainment/Sports/Media	tell stories through musical, visual, or dramatic arts	11	32%
Arts/Design/Entertainment/Sports/Media	confer with other departmental heads to coordinate activities	10	29%
Arts/Design/Entertainment/Sports/Media	edit written material	10	29%
Arts/Design/Entertainment/Sports/Media	sketch or draw subjects or items	10	29%
Arts/Design/Entertainment/Sports/Media	use creativity in graphics	10	29%
Arts/Design/Entertainment/Sports/Media	use public speaking techniques	10	29%

Tools & Technologies

Not available.

(Building, Grounds Cleaning, and Maintenance Occupations)

8 occupations were analyzed in the Building, Grounds Cleaning, and Maintenance occupational group and the knowledge area, "Customer and Personal Service," was found needed in 50 percent of all occupations (4/8) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Building/Grounds Cleaning/Maintenance	Customer and Personal Service	4	50%
Building/Grounds Cleaning/Maintenance	Mathematics	4	50%
Building/Grounds Cleaning/Maintenance	Chemistry	3	38%
Building/Grounds Cleaning/Maintenance	Clerical	3	38%
Building/Grounds Cleaning/Maintenance	Administration and Management	2	25%
Building/Grounds Cleaning/Maintenance	Biology	2	25%
Building/Grounds Cleaning/Maintenance	Education and Training	2	25%
Building/Grounds Cleaning/Maintenance	English Language	2	25%
Building/Grounds Cleaning/Maintenance	Mechanical	2	25%
Building/Grounds Cleaning/Maintenance	Sales and Marketing	2	25%

8 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Building/Grounds Cleaning/Maintenance	Performing General Physical Activities	7	88%
Building/Grounds Cleaning/Maintenance	Handling and Moving Objects	6	75%
Building/Grounds Cleaning/Maintenance	Estimating the Quantifiable Characteristics of Products, Events, or Information	5	63%
Building/Grounds Cleaning/Maintenance	Getting Information	5	63%
Building/Grounds Cleaning/Maintenance	Judging the Qualities of Things, Services, or People	5	63%
Building/Grounds Cleaning/Maintenance	Controlling Machines and Processes	4	50%
Building/Grounds Cleaning/Maintenance	Identifying Objects, Actions, and Events	4	50%
Building/Grounds Cleaning/Maintenance	Inspecting Equipment, Structures, or Material	4	50%
Building/Grounds Cleaning/Maintenance	Monitor Processes, Materials, or Surroundings	4	50%
Building/Grounds Cleaning/Maintenance	Organizing, Planning, and Prioritizing Work	4	50%

(Building, Grounds Cleaning, and Maintenance Occupations - continued)

8 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Building/Grounds Cleaning/Maintenance	mix paint, ingredients, or chemicals, according to specifications	6	75%
Building/Grounds Cleaning/Maintenance	move or fit heavy objects	6	75%
Building/Grounds Cleaning/Maintenance	use hand or power tools	6	75%
Building/Grounds Cleaning/Maintenance	use herbicides, fertilizers, pesticides or related products	6	75%
Building/Grounds Cleaning/Maintenance	use portable hand spray equipment	5	63%
Building/Grounds Cleaning/Maintenance	clean rooms or work areas	4	50%
Building/Grounds Cleaning/Maintenance	direct and coordinate activities of workers or staff	4	50%
Building/Grounds Cleaning/Maintenance	use plant disease control techniques	4	50%
Building/Grounds Cleaning/Maintenance	use power mower	4	50%
Building/Grounds Cleaning/Maintenance	assign work to staff or employees	3	38%

Tools & Technologies

Not available.

(Business and Financial Occupations)

23 occupations were analyzed in the Business and Financial occupational group and the knowledge area, "English Language," was found needed in 100 percent of all occupations (23/23) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Business/Financial	English Language	23	100%
Business/Financial	Clerical	21	91%
Business/Financial	Mathematics	21	91%
Business/Financial	Economics and Accounting	20	87%
Business/Financial	Administration and Management	19	83%
Business/Financial	Customer and Personal Service	19	83%
Business/Financial	Computers and Electronics	15	65%
Business/Financial	Law and Government	15	65%
Business/Financial	Education and Training	12	52%
Business/Financial	Communications and Media	10	43%
Business/Financial	Sales and Marketing	10	43%

23 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Business/Financial	Communicating with Supervisors, Peers, or Subordinates	23	100%
Business/Financial	Getting Information	23	100%
Business/Financial	Making Decisions and Solving Problems	23	100%
Business/Financial	Communicating with Persons Outside Organization	22	96%
Business/Financial	Processing Information	22	96%
Business/Financial	Documenting/Recording Information	21	91%
Business/Financial	Establishing and Maintaining Interpersonal Relationships	21	91%
Business/Financial	Identifying Objects, Actions, and Events	21	91%
Business/Financial	Updating and Using Relevant Knowledge	21	91%
Business/Financial	Interacting With Computers	20	87%

(Business and Financial Occupations - continued)

24 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Business/Financial	analyze financial data	15	63%
Business/Financial	compute financial data	13	54%
Business/Financial	obtain information from individuals	13	54%
Business/Financial	use computers to enter, access and retrieve financial data	11	46%
Business/Financial	advise clients on financial matters	10	42%
Business/Financial	maintain records, reports, or files	10	42%
Business/Financial	prepare financial reports	10	42%
Business/Financial	use interviewing procedures	10	42%
Business/Financial	use spreadsheet software	10	42%
Business/Financial	compile data for financial reports	8	33%

14 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Business/Financial	Desktop computers	12	86%
Business/Financial	Financial analysis software	12	86%
Business/Financial	Personal computers	12	86%
Business/Financial	Notebook computers	11	79%
Business/Financial	Data base user interface and query software	10	71%
Business/Financial	Spreadsheet software	10	71%
Business/Financial	Analytical or scientific software	9	64%
Business/Financial	Word processing software	9	64%
Business/Financial	Internet browser software	8	57%
Business/Financial	Accounting software	7	50%

(Community and Social Services Occupations)

11 occupations were analyzed in the Community and Social Services occupational group and the knowledge area, "English Language," was found needed in 100 percent of all occupations (11/11) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Community/Social Services	English Language	11	100%
Community/Social Services	Therapy and Counseling	11	100%
Community/Social Services	Customer and Personal Service	10	91%
Community/Social Services	Psychology	10	91%
Community/Social Services	Sociology and Anthropology	10	91%
Community/Social Services	Education and Training	8	73%
Community/Social Services	Philosophy and Theology	8	73%
Community/Social Services	Administration and Management	7	64%
Community/Social Services	Clerical	7	64%
Community/Social Services	Law and Government	7	64%

11 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Community/Social Services	Communicating with Persons Outside Organization	11	100%
Community/Social Services	Communicating with Supervisors, Peers, or Subordinates	11	100%
Community/Social Services	Establishing and Maintaining Interpersonal Relationships	11	100%
Community/Social Services	Getting Information	11	100%
Community/Social Services	Making Decisions and Solving Problems	11	100%
Community/Social Services	Performing for or Working Directly with the Public	11	100%
Community/Social Services	Assisting and Caring for Others	10	91%
Community/Social Services	Identifying Objects, Actions, and Events	10	91%
Community/Social Services	Interpreting the Meaning of Information for Others	10	91%
Community/Social Services	Judging the Qualities of Things, Services, or People	10	91%
Community/Social Services	Organizing, Planning, and Prioritizing Work	10	91%
Community/Social Services	Training and Teaching Others	10	91%

(Community and Social Services Occupations - continued)

13 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Community/Social Services	empathize with others during counseling or related services	12	92%
Community/Social Services	use counseling techniques	11	85%
Community/Social Services	coordinate social service activities with resource providers	10	77%
Community/Social Services	refer clients to community services or resources	10	77%
Community/Social Services	use interviewing procedures	10	77%
Community/Social Services	record client's personal data	9	69%
Community/Social Services	use interpersonal communication techniques	9	69%
Community/Social Services	follow confidentiality procedures	8	62%
Community/Social Services	manage detailed case records in a social work setting	8	62%
Community/Social Services	relate to clients' socioeconomic conditions	8	62%

5 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Community/Social Services	Calendar and scheduling software	5	100%
Community/Social Services	Data base user interface and query software	5	100%
Community/Social Services	Desktop computers	5	100%
Community/Social Services	Electronic mail software	5	100%
Community/Social Services	Internet browser software	5	100%
Community/Social Services	Notebook computers	5	100%
Community/Social Services	Personal computers	5	100%
Community/Social Services	Spreadsheet software	5	100%
Community/Social Services	Word processing software	5	100%
Community/Social Services	Office suite software	4	80%

(Computer and Math Occupations)

4 occupations were analyzed in the Computer and Math occupational group and the knowledge area, "Computers and Electronics," was found needed in 100 percent of all occupations (4/4) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Computer/Math	Computers and Electronics	4	100%
Computer/Math	English Language	4	100%
Computer/Math	Administration and Management	3	75%
Computer/Math	Economics and Accounting	3	75%
Computer/Math	Clerical	2	50%
Computer/Math	Engineering and Technology	2	50%
Computer/Math	Mathematics	2	50%
Computer/Math	Customer and Personal Service	1	25%
Computer/Math	Law and Government	1	25%
Computer/Math	Personnel and Human Resources	1	25%

4 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Computer/Math	Analyzing Data or Information	4	100%
Computer/Math	Communicating with Persons Outside Organization	4	100%
Computer/Math	Communicating with Supervisors, Peers, or Subordinates	4	100%
Computer/Math	Developing Objectives and Strategies	4	100%
Computer/Math	Estimating the Quantifiable Characteristics of Products, Events, or Information	4	100%
Computer/Math	Getting Information	4	100%
Computer/Math	Identifying Objects, Actions, and Events	4	100%
Computer/Math	Interacting With Computers	4	100%
Computer/Math	Interpreting the Meaning of Information for Others	4	100%
Computer/Math	Making Decisions and Solving Problems	4	100%

(Computer and Math Occupations - continued)

4 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Computer/Math	analyze scientific research data or investigative findings	4	100%
Computer/Math	collect statistical data	4	100%
Computer/Math	communicate technical information	4	100%
Computer/Math	compile numerical or statistical data	4	100%
Computer/Math	create mathematical or statistical diagrams or charts	4	100%
Computer/Math	develop mathematical ideas or interpretations	4	100%
Computer/Math	develop mathematical simulation models	4	100%
Computer/Math	develop or maintain databases	4	100%
Computer/Math	develop tables depicting data	4	100%
Computer/Math	explain complex mathematical information	4	100%

Tools & Technologies

Not available.

(Construction and Extraction Occupations)

53 occupations were analyzed in the Construction and Extraction occupational group and the knowledge area, "Building and Construction," was found needed in 74 percent of all occupations (39/53) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Construction/Extraction	Building and Construction	39	74%
Construction/Extraction	Mechanical	38	72%
Construction/Extraction	Mathematics	30	57%
Construction/Extraction	Public Safety and Security	27	51%
Construction/Extraction	Engineering and Technology	22	42%
Construction/Extraction	Design	21	40%
Construction/Extraction	English Language	20	38%
Construction/Extraction	Customer and Personal Service	17	32%
Construction/Extraction	Administration and Management	16	30%
Construction/Extraction	Education and Training	16	30%
Construction/Extraction	Production and Processing	16	30%

53 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Construction/Extraction	Handling and Moving Objects	51	96%
Construction/Extraction	Performing General Physical Activities	50	94%
Construction/Extraction	Getting Information	44	83%
Construction/Extraction	Controlling Machines and Processes	39	74%
Construction/Extraction	Inspecting Equipment, Structures, or Material	34	64%
Construction/Extraction	Monitor Processes, Materials, or Surroundings	34	64%
Construction/Extraction	Communicating with Supervisors, Peers, or Subordinates	26	49%
Construction/Extraction	Making Decisions and Solving Problems	26	49%
Construction/Extraction	Operating Vehicles, Mechanized Devices, or Equipment	25	47%
Construction/Extraction	Identifying Objects, Actions, and Events	23	43%

(Construction and Extraction Occupations - continued)

54 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Construction/Extraction	use hand or power tools	50	93%
Construction/Extraction	use measuring devices in construction or extraction work	43	80%
Construction/Extraction	move or fit heavy objects	41	76%
Construction/Extraction	adhere to safety procedures	40	74%
Construction/Extraction	fabricate, assemble, or disassemble manufactured products by hand	39	72%
Construction/Extraction	perform safety inspections in construction or resource extraction setting	34	63%
Construction/Extraction	read tape measure	34	63%
Construction/Extraction	build or repair structures in construction, repair, or manufacturing setting	28	52%
Construction/Extraction	apply adhesives, caulking, sealants, or coatings	27	50%
Construction/Extraction	erect scaffold	26	48%

35 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Construction/Extraction	Hammers	30	86%
Construction/Extraction	Scaffolding	30	86%
Construction/Extraction	Power saws	29	83%
Construction/Extraction	Ladders	28	80%
Construction/Extraction	Power drills	28	80%
Construction/Extraction	Screwdrivers	26	74%
Construction/Extraction	Tape measures	25	71%
Construction/Extraction	Utility knives	25	71%
Construction/Extraction	Air compressors	24	69%
Construction/Extraction	Levels	23	66%
Construction/Extraction	Saws	23	66%

(Education and Library Occupations)

54 occupations were analyzed in the Education and Library occupational group and the knowledge area, "Education and Training," was found needed in 98 percent of all occupations (53/54) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Education/Library	Education and Training	53	98%
Education/Library	English Language	52	96%
Education/Library	Computers and Electronics	50	93%
Education/Library	Administration and Management	46	85%
Education/Library	Clerical	46	85%
Education/Library	Customer and Personal Service	46	85%
Education/Library	Communications and Media	43	80%
Education/Library	Mathematics	42	78%
Education/Library	Psychology	40	74%
Education/Library	Sociology and Anthropology	34	63%

54 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Education/Library	Establishing and Maintaining Interpersonal Relationships	54	100%
Education/Library	Getting Information	54	100%
Education/Library	Communicating with Supervisors, Peers, or Subordinates	53	98%
Education/Library	Identifying Objects, Actions, and Events	53	98%
Education/Library	Documenting/Recording Information	52	96%
Education/Library	Making Decisions and Solving Problems	52	96%
Education/Library	Organizing, Planning, and Prioritizing Work	52	96%
Education/Library	Thinking Creatively	52	96%
Education/Library	Updating and Using Relevant Knowledge	52	96%
Education/Library	Judging the Qualities of Things, Services, or People	51	94%
Education/Library	Training and Teaching Others	51	94%

(Education and Library Occupations - continued)

54 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Education/Library	use oral or written communication techniques	52	96%
Education/Library	develop instructional materials	48	89%
Education/Library	use public speaking techniques	48	89%
Education/Library	use teaching techniques	48	89%
Education/Library	convert information into instructional program	46	85%
Education/Library	organize educational material or ideas	46	85%
Education/Library	develop course or training objectives	45	83%
Education/Library	design classroom presentations	44	81%
Education/Library	evaluate student performance	44	81%
Education/Library	maintain educational records, reports, or files	44	81%

Tools & Technologies

Not available.

(Farming, Fishing, and Forestry Occupations)

11 occupations were analyzed in the Farming, Fishing, and Forestry occupational group and the knowledge area, "Mechanical," was found needed in 64 percent of all occupations (7/11) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Farming/Fishing/Forestry	Mechanical	7	64%
Farming/Fishing/Forestry	Biology	6	55%
Farming/Fishing/Forestry	Food Production	5	45%
Farming/Fishing/Forestry	English Language	4	36%
Farming/Fishing/Forestry	Mathematics	4	36%
Farming/Fishing/Forestry	Production and Processing	4	36%
Farming/Fishing/Forestry	Administration and Management	3	27%
Farming/Fishing/Forestry	Education and Training	3	27%
Farming/Fishing/Forestry	Law and Government	3	27%
Farming/Fishing/Forestry	Transportation	3	27%

(Farming, Fishing, and Forestry Occupations)

11 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Farming/Fishing/Forestry	Getting Information	10	91%
Farming/Fishing/Forestry	Handling and Moving Objects	9	82%
Farming/Fishing/Forestry	Identifying Objects, Actions, and Events	9	82%
Farming/Fishing/Forestry	Monitor Processes, Materials, or Surroundings	9	82%
Farming/Fishing/Forestry	Performing General Physical Activities	9	82%
Farming/Fishing/Forestry	Inspecting Equipment, Structures, or Material	8	73%
Farming/Fishing/Forestry	Judging the Qualities of Things, Services, or People	8	73%
Farming/Fishing/Forestry	Making Decisions and Solving Problems	8	73%
Farming/Fishing/Forestry	Controlling Machines and Processes	6	55%
Farming/Fishing/Forestry	Evaluating Information to Determine Compliance with Standards	6	55%

(Farming, Fishing, and Forestry Occupations - continued)

11 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Farming/Fishing/Forestry	perform safety inspections in agricultural, forestry, or fishing setting	7	64%
Farming/Fishing/Forestry	identify crop characteristics	6	55%
Farming/Fishing/Forestry	use herbicides, fertilizers, pesticides or related products	6	55%
Farming/Fishing/Forestry	examine animals to detect illness, disease, or injury	5	45%
Farming/Fishing/Forestry	grade, classify, or sort products according to specifications	5	45%
Farming/Fishing/Forestry	identify livestock characteristics	5	45%
Farming/Fishing/Forestry	load, unload, or stack containers, materials, or products	5	45%
Farming/Fishing/Forestry	maintain or repair farm vehicles, machinery, or mechanical implements	5	45%
Farming/Fishing/Forestry	measure, weigh, or count products or materials	5	45%
Farming/Fishing/Forestry	move or fit heavy objects	5	45%

Tools & Technologies

Not available.

(Food Preparation and Serving Occupations)

15 occupations were analyzed in the Food Preparation and Serving occupational group and the knowledge area, "Customer and Personal Service," was found needed in 93 percent of all occupations (14/15) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Food Prep/Serving	Customer and Personal Service	14	93%
Food Prep/Serving	English Language	12	80%
Food Prep/Serving	Mathematics	11	73%
Food Prep/Serving	Administration and Management	10	67%
Food Prep/Serving	Food Production	10	67%
Food Prep/Serving	Production and Processing	7	47%
Food Prep/Serving	Education and Training	6	40%
Food Prep/Serving	Sales and Marketing	6	40%
Food Prep/Serving	Personnel and Human Resources	4	27%
Food Prep/Serving	Economics and Accounting	3	20%

(Food Preparation and Serving Occupations)

15 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Food Prep/Serving	Getting Information	13	87%
Food Prep/Serving	Handling and Moving Objects	12	80%
Food Prep/Serving	Monitor Processes, Materials, or Surroundings	12	80%
Food Prep/Serving	Performing General Physical Activities	12	80%
Food Prep/Serving	Communicating with Supervisors, Peers, or Subordinates	11	73%
Food Prep/Serving	Performing for or Working Directly with the Public	11	73%
Food Prep/Serving	Identifying Objects, Actions, and Events	9	60%
Food Prep/Serving	Judging the Qualities of Things, Services, or People	9	60%
Food Prep/Serving	Making Decisions and Solving Problems	8	53%
Food Prep/Serving	Establishing and Maintaining Interpersonal Relationships	7	47%

(Food Preparation and Serving Occupations - continued)

16 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Food Prep/Serving	provide customer service	14	88%
Food Prep/Serving	understand government health, hotel or food service regulations	14	88%
Food Prep/Serving	use knowledge of food handling rules	13	81%
Food Prep/Serving	clean rooms or work areas	12	75%
Food Prep/Serving	serve food or beverages	12	75%
Food Prep/Serving	prepare appetizers, salads, or cold dishes	11	69%
Food Prep/Serving	prepare beverages	10	63%
Food Prep/Serving	use oral or written communication techniques	9	56%
Food Prep/Serving	wash dishes, glassware, or related utensils	9	56%
Food Prep/Serving	operate food preparation equipment	8	50%
Food Prep/Serving	requisition stock, materials, supplies or equipment	8	50%

6 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Food Prep/Serving	Point of sale POS software	5	83%
Food Prep/Serving	Point of sale POS terminal	5	83%
Food Prep/Serving	Cash registers	4	67%
Food Prep/Serving	Commercial use cutlery	4	67%
Food Prep/Serving	Magnetic card readers	4	67%
Food Prep/Serving	Point of sale POS receipt printers	4	67%
Food Prep/Serving	Bar code reader equipment	3	50%
Food Prep/Serving	Carbonated beverage dispenser	3	50%
Food Prep/Serving	Commercial use blenders	3	50%
Food Prep/Serving	Commercial use broilers	3	50%

(Healthcare Professionals Occupations)

40 occupations were analyzed in the Healthcare Professionals occupational group and the knowledge area, "Customer and Personal Service," was found needed in 95 percent of all occupations (38/40) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Healthcare Professionals	Customer and Personal Service	38	95%
Healthcare Professionals	English Language	38	95%
Healthcare Professionals	Education and Training	37	93%
Healthcare Professionals	Mathematics	32	80%
Healthcare Professionals	Medicine and Dentistry	32	80%
Healthcare Professionals	Psychology	31	78%
Healthcare Professionals	Biology	30	75%
Healthcare Professionals	Therapy and Counseling	29	73%
Healthcare Professionals	Chemistry	28	70%
Healthcare Professionals	Public Safety and Security	26	65%

40 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Healthcare Professionals	Communicating with Supervisors, Peers, or Subordinates	40	100%
Healthcare Professionals	Getting Information	40	100%
Healthcare Professionals	Identifying Objects, Actions, and Events	40	100%
Healthcare Professionals	Making Decisions and Solving Problems	40	100%
Healthcare Professionals	Establishing and Maintaining Interpersonal Relationships	38	95%
Healthcare Professionals	Updating and Using Relevant Knowledge	38	95%
Healthcare Professionals	Documenting/Recording Information	37	93%
Healthcare Professionals	Monitor Processes, Materials, or Surroundings	37	93%
Healthcare Professionals	Assisting and Caring for Others	36	90%
Healthcare Professionals	Organizing, Planning, and Prioritizing Work	36	90%

(Healthcare Professionals Occupations - continued)

41 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Healthcare Professionals	communicate technical information	38	93%
Healthcare Professionals	use knowledge of medical terminology	36	88%
Healthcare Professionals	use sanitation practices in health care settings	32	78%
Healthcare Professionals	make presentations on health or medical issues	31	76%
Healthcare Professionals	use interpersonal communication techniques	30	73%
Healthcare Professionals	analyze medical data	27	66%
Healthcare Professionals	collect clinical data	27	66%
Healthcare Professionals	identify body response variations	27	66%
Healthcare Professionals	observe patient condition	27	66%
Healthcare Professionals	administer medications or treatments	24	59%

22 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Healthcare Professionals	Database user interface and query software	21	95%
Healthcare Professionals	Notebook computers	21	95%
Healthcare Professionals	Personal computers	20	91%
Healthcare Professionals	Desktop computers	16	73%
Healthcare Professionals	Word processing software	16	73%
Healthcare Professionals	Medical software	13	59%
Healthcare Professionals	Accounting software	12	55%
Healthcare Professionals	Spreadsheet software	12	55%
Healthcare Professionals	Electronic blood pressure units	11	50%
Healthcare Professionals	Internet browser software	11	50%
Healthcare Professionals	Mechanical stethoscopes or accessories	11	50%

(Healthcare Support Occupations)

11 occupations were analyzed in the Healthcare Support occupational group and the knowledge area, "Medicine and Dentistry," was found needed in 100 percent of all occupations (11/11) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Healthcare Support	Medicine and Dentistry	11	100%
Healthcare Support	Customer and Personal Service	10	91%
Healthcare Support	English Language	10	91%
Healthcare Support	Clerical	8	73%
Healthcare Support	Education and Training	8	73%
Healthcare Support	Public Safety and Security	8	73%
Healthcare Support	Therapy and Counseling	7	64%
Healthcare Support	Administration and Management	6	55%
Healthcare Support	Psychology	6	55%
Healthcare Support	Law and Government	5	45%
Healthcare Support	Mathematics	5	45%

11 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Healthcare Support	Assisting and Caring for Others	11	100%
Healthcare Support	Communicating with Supervisors, Peers, or Subordinates	11	100%
Healthcare Support	Documenting/Recording Information	11	100%
Healthcare Support	Establishing and Maintaining Interpersonal Relationships	11	100%
Healthcare Support	Getting Information	11	100%
Healthcare Support	Identifying Objects, Actions, and Events	11	100%
Healthcare Support	Monitor Processes, Materials, or Surroundings	11	100%
Healthcare Support	Making Decisions and Solving Problems	10	91%
Healthcare Support	Organizing, Planning, and Prioritizing Work	9	82%
Healthcare Support	Performing General Physical Activities	9	82%
Healthcare Support	Updating and Using Relevant Knowledge	9	82%

(Healthcare Support Occupations - continued)

12 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Healthcare Support	observe patient condition	9	75%
Healthcare Support	administer medications or treatments	8	67%
Healthcare Support	maintain dental or medical records	8	67%
Healthcare Support	prepare patients for tests, therapy, or treatments	8	67%
Healthcare Support	set up patient care equipment	8	67%
Healthcare Support	lift or transport ill or injured patients	7	58%
Healthcare Support	position patient for therapy	7	58%
Healthcare Support	take vital signs	7	58%
Healthcare Support	use knowledge of medical terminology	7	58%
Healthcare Support	schedule meetings or appointments	6	50%
Healthcare Support	weigh patients	6	50%
Healthcare Support	work with persons with mental disabilities or illnesses	6	50%

10 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Healthcare Support	Spreadsheet software	9	90%
Healthcare Support	Word processing software	9	90%
Healthcare Support	Data base user interface and query software	8	80%
Healthcare Support	Personal computers	8	80%
Healthcare Support	Calendar and scheduling software	7	70%
Healthcare Support	Desktop computers	7	70%
Healthcare Support	Notebook computers	7	70%
Healthcare Support	Electronic mail software	6	60%
Healthcare Support	Accounting software	5	50%
Healthcare Support	Canes or cane accessories	5	50%

(Legal Occupations)

7 occupations were analyzed in the Legal occupational group and the knowledge area, "English Language," was found needed in 100 percent of all occupations (7/7) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Legal	English Language	7	100%
Legal	Law and Government	7	100%
Legal	Clerical	6	86%
Legal	Computers and Electronics	6	86%
Legal	Customer and Personal Service	5	71%
Legal	Administration and Management	4	57%
Legal	Mathematics	4	57%
Legal	Personnel and Human Resources	3	43%
Legal	Psychology	3	43%
Legal	Economics and Accounting	2	29%
Legal	Public Safety and Security	2	29%
Legal	Therapy and Counseling	2	29%

(Legal Occupations)

7 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Legal	Establishing and Maintaining Interpersonal Relationships	7	100%
Legal	Getting Information	7	100%
Legal	Identifying Objects, Actions, and Events	7	100%
Legal	Processing Information	7	100%
Legal	Updating and Using Relevant Knowledge	7	100%
Legal	Analyzing Data or Information	6	86%
Legal	Communicating with Persons Outside Organization	6	86%
Legal	Communicating with Supervisors, Peers, or Subordinates	6	86%
Legal	Documenting/Recording Information	6	86%
Legal	Evaluating Information to Determine Compliance with Standards	6	86%

(Legal Occupations - continued)

7 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Legal	analyze existing evidence or facts	6	86%
Legal	organize legal information or records	6	86%
Legal	understand legal terminology	6	86%
Legal	write legal documents	6	86%
Legal	analyze data to discover facts in case	5	71%
Legal	analyze legal questions	5	71%
Legal	communicate technical information	5	71%
Legal	follow rules of evidence procedures in legal setting	5	71%
Legal	make presentations	5	71%
Legal	use conflict resolution techniques	5	71%

Tools & Technologies

Not available.

(Life, Physical, and Social Science Occupations)

34 occupations were analyzed in the Life, Physical, and Social Science occupational group and the knowledge area, "English Language," was found needed in 94 percent of all occupations (32/34) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Life/Physical/Social Science	English Language	32	94%
Life/Physical/Social Science	Mathematics	32	94%
Life/Physical/Social Science	Administration and Management	27	79%
Life/Physical/Social Science	Computers and Electronics	27	79%
Life/Physical/Social Science	Education and Training	23	68%
Life/Physical/Social Science	Customer and Personal Service	21	62%
Life/Physical/Social Science	Clerical	19	56%
Life/Physical/Social Science	Biology	18	53%
Life/Physical/Social Science	Communications and Media	17	50%
Life/Physical/Social Science	Law and Government	17	50%

(Life, Physical, and Social Science Occupations)

34 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Life/Physical/Social Science	Analyzing Data or Information	34	100%
Life/Physical/Social Science	Getting Information	34	100%
Life/Physical/Social Science	Identifying Objects, Actions, and Events	34	100%
Life/Physical/Social Science	Processing Information	34	100%
Life/Physical/Social Science	Updating and Using Relevant Knowledge	34	100%
Life/Physical/Social Science	Documenting/Recording Information	33	97%
Life/Physical/Social Science	Communicating with Supervisors, Peers, or Subordinates	32	94%
Life/Physical/Social Science	Making Decisions and Solving Problems	31	91%
Life/Physical/Social Science	Monitor Processes, Materials, or Surroundings	31	91%
Life/Physical/Social Science	Estimating the Quantifiable Characteristics of Products, Events, or Information	30	88%

(Life, Physical, and Social Science Occupations - continued)

34 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Life/Physical/Social Science	analyze scientific research data or investigative findings	34	100%
Life/Physical/Social Science	collect scientific or technical data	34	100%
Life/Physical/Social Science	use computers to enter, access or retrieve data	34	100%
Life/Physical/Social Science	communicate technical information	33	97%
Life/Physical/Social Science	develop or maintain databases	33	97%
Life/Physical/Social Science	use relational database software	33	97%
Life/Physical/Social Science	use scientific research methodology	33	97%
Life/Physical/Social Science	use spreadsheet software	33	97%
Life/Physical/Social Science	use word processing or desktop publishing software	33	97%
Life/Physical/Social Science	develop tables depicting data	32	94%

15 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Life/Physical/Social Science	Analytical or scientific software	15	100%
Life/Physical/Social Science	Data base user interface and query software	15	100%
Life/Physical/Social Science	Personal computers	15	100%
Life/Physical/Social Science	Spreadsheet software	15	100%
Life/Physical/Social Science	Word processing software	15	100%
Life/Physical/Social Science	Notebook computers	14	93%
Life/Physical/Social Science	Presentation software	13	87%
Life/Physical/Social Science	pH meters	13	87%
Life/Physical/Social Science	Graphics or photo imaging software	12	80%
Life/Physical/Social Science	Internet browser software	12	80%
Life/Physical/Social Science	Laser printers	12	80%
Life/Physical/Social Science	Office suite software	12	80%

(Maintenance and Repair Occupations)

45 occupations were analyzed in the Maintenance and Repair occupational group and the knowledge area, "Mechanical," was found needed in 87 percent of all occupations (39/45) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Maintenance/Repair	Mechanical	39	87%
Maintenance/Repair	Engineering and Technology	35	78%
Maintenance/Repair	Mathematics	22	49%
Maintenance/Repair	Computers and Electronics	21	47%
Maintenance/Repair	Customer and Personal Service	18	40%
Maintenance/Repair	English Language	17	38%
Maintenance/Repair	Public Safety and Security	17	38%
Maintenance/Repair	Building and Construction	16	36%
Maintenance/Repair	Design	15	33%
Maintenance/Repair	Physics	14	31%

45 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Maintenance/Repair	Getting Information	45	100%
Maintenance/Repair	Inspecting Equipment, Structures, or Material	45	100%
Maintenance/Repair	Handling and Moving Objects	43	96%
Maintenance/Repair	Identifying Objects, Actions, and Events	40	89%
Maintenance/Repair	Monitor Processes, Materials, or Surroundings	38	84%
Maintenance/Repair	Performing General Physical Activities	33	73%
Maintenance/Repair	Repairing and Maintaining Mechanical Equipment	33	73%
Maintenance/Repair	Controlling Machines and Processes	32	71%
Maintenance/Repair	Making Decisions and Solving Problems	28	62%
Maintenance/Repair	Repairing and Maintaining Electronic Equipment	26	58%
Maintenance/Repair	Updating and Using Relevant Knowledge	26	58%

(Maintenance and Repair Occupations - continued)

46 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Maintenance/Repair	use hand or power tools	45	98%
Maintenance/Repair	fabricate, assemble, or disassemble manufactured products by hand	43	93%
Maintenance/Repair	perform safety inspections in industrial, manufacturing or repair setting	40	87%
Maintenance/Repair	understand service or repair manuals	40	87%
Maintenance/Repair	read work order, instructions, formulas, or processing charts	38	83%
Maintenance/Repair	read technical drawings	37	80%
Maintenance/Repair	read schematics	35	76%
Maintenance/Repair	understand technical operating, service or repair manuals	35	76%
Maintenance/Repair	read blueprints	34	74%
Maintenance/Repair	use soldering equipment	33	72%

17 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Maintenance/Repair	Hammers	16	94%
Maintenance/Repair	Personal computers	15	88%
Maintenance/Repair	Power drills	15	88%
Maintenance/Repair	Utility knives	15	88%
Maintenance/Repair	Screwdrivers	14	82%
Maintenance/Repair	Desktop computers	13	76%
Maintenance/Repair	Hoists	13	76%
Maintenance/Repair	Power grinders	13	76%
Maintenance/Repair	Adjustable wrenches	12	71%
Maintenance/Repair	Air compressors	12	71%

(Management Occupations)

26 occupations were analyzed in the Management occupational group and the knowledge area, "English Language," was found needed in 100 percent of all occupations (26/26) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Management	English Language	26	100%
Management	Mathematics	26	100%
Management	Administration and Management	25	96%
Management	Customer and Personal Service	24	92%
Management	Clerical	23	88%
Management	Computers and Electronics	22	85%
Management	Law and Government	21	81%
Management	Personnel and Human Resources	21	81%
Management	Economics and Accounting	20	77%
Management	Communications and Media	19	73%
Management	Education and Training	19	73%

(Management Occupations)

26 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Management	Analyzing Data or Information	26	100%
Management	Communicating with Supervisors, Peers, or Subordinates	26	100%
Management	Documenting/Recording Information	26	100%
Management	Establishing and Maintaining Interpersonal Relationships	26	100%
Management	Getting Information	26	100%
Management	Making Decisions and Solving Problems	26	100%
Management	Organizing, Planning, and Prioritizing Work	26	100%
Management	Communicating with Persons Outside Organization	25	96%
Management	Coordinating the Work and Activities of Others	25	96%
Management	Guiding, Directing, and Motivating Subordinates	25	96%

(Management Occupations - continued)

26 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Management	assign work to staff or employees	25	96%
Management	oversee execution of organizational or program policies	25	96%
Management	conduct or attend staff meetings	22	85%
Management	direct and coordinate activities of workers or staff	22	85%
Management	hire, discharge, transfer, or promote workers	18	69%
Management	analyze operational or management reports or records	15	58%
Management	develop budgets	15	58%
Management	develop policies, procedures, methods, or standards	15	58%
Management	evaluate performance of employees or contract personnel	15	58%
Management	manage contracts	13	50%
Management	orient new employees	13	50%

12 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Management	Data base user interface and query software	12	100%
Management	Personal computers	12	100%
Management	Spreadsheet software	12	100%
Management	Word processing software	12	100%
Management	Project management software	11	92%
Management	Electronic mail software	9	75%
Management	Internet browser software	9	75%
Management	Notebook computers	9	75%
Management	Presentation software	9	75%
Management	Calendar and scheduling software	8	67%

(Office and Administrative Support Occupations)

52 occupations were analyzed in the Office and Administrative Support group and the knowledge area, "English Language," was found needed in 100 percent of all occupations (46/52) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Office/Administrative Support	English Language	46	88%
Office/Administrative Support	Clerical	44	85%
Office/Administrative Support	Customer and Personal Service	42	81%
Office/Administrative Support	Computers and Electronics	34	65%
Office/Administrative Support	Mathematics	34	65%
Office/Administrative Support	Administration and Management	29	56%
Office/Administrative Support	Economics and Accounting	18	35%
Office/Administrative Support	Communications and Media	13	25%
Office/Administrative Support	Law and Government	11	21%
Office/Administrative Support	Public Safety and Security	11	21%

52 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Office/Administrative Support	Getting Information	52	100%
Office/Administrative Support	Processing Information	48	92%
Office/Administrative Support	Communicating with Supervisors, Peers, or Subordinates	41	79%
Office/Administrative Support	Establishing and Maintaining Interpersonal Relationships	41	79%
Office/Administrative Support	Identifying Objects, Actions, and Events	41	79%
Office/Administrative Support	Communicating with Persons Outside Organization	39	75%
Office/Administrative Support	Documenting/Recording Information	39	75%
Office/Administrative Support	Interacting With Computers	39	75%
Office/Administrative Support	Performing Administrative Activities	37	71%
Office/Administrative Support	Updating and Using Relevant Knowledge	36	69%

(Office and Administrative Support Occupations - continued)

52 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Office/Administrative Support	use computers to enter, access or retrieve data	49	94%
Office/Administrative Support	maintain records, reports, or files	43	83%
Office/Administrative Support	use oral or written communication techniques	37	71%
Office/Administrative Support	fill out business or government forms	31	60%
Office/Administrative Support	provide customer service	27	52%
Office/Administrative Support	operate business machines	20	38%
Office/Administrative Support	maintain inventory of office forms	19	37%
Office/Administrative Support	obtain information from individuals	19	37%
Office/Administrative Support	take messages	19	37%
Office/Administrative Support	answer customer or public inquiries	18	35%
Office/Administrative Support	prepare reports	18	35%

14 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Office/Administrative Support	Data base user interface and query software	12	86%
Office/Administrative Support	Desktop computers	11	79%
Office/Administrative Support	Internet browser software	10	71%
Office/Administrative Support	Spreadsheet software	10	71%
Office/Administrative Support	Word processing software	10	71%
Office/Administrative Support	Personal computers	9	64%
Office/Administrative Support	Electronic mail software	8	57%
Office/Administrative Support	Office suite software	8	57%
Office/Administrative Support	Accounting software	7	50%
Office/Administrative Support	Customer relationship management CRM software	6	43%

(Personal Services Occupations)

24 occupations were analyzed in the Personal Services group and the knowledge area, "English Language," was found needed in 92 percent of all occupations (22/24) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Personal Services	English Language	22	92%
Personal Services	Customer and Personal Service	21	88%
Personal Services	Administration and Management	14	58%
Personal Services	Public Safety and Security	10	42%
Personal Services	Education and Training	9	38%
Personal Services	Mathematics	8	33%
Personal Services	Psychology	8	33%
Personal Services	Sales and Marketing	7	29%
Personal Services	Clerical	6	25%
Personal Services	Personnel and Human Resources	6	25%

24 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Personal Services	Getting Information	23	96%
Personal Services	Making Decisions and Solving Problems	21	88%
Personal Services	Communicating with Supervisors, Peers, or Subordinates	19	79%
Personal Services	Establishing and Maintaining Interpersonal Relationships	19	79%
Personal Services	Judging the Qualities of Things, Services, or People	19	79%
Personal Services	Assisting and Caring for Others	18	75%
Personal Services	Identifying Objects, Actions, and Events	18	75%
Personal Services	Performing for or Working Directly with the Public	18	75%
Personal Services	Monitor Processes, Materials, or Surroundings	17	71%
Personal Services	Organizing, Planning, and Prioritizing Work	16	67%

(Personal Services Occupations - continued)

25 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Personal Services	provide customer service	12	48%
Personal Services	use oral or written communication techniques	12	48%
Personal Services	clean rooms or work areas	11	44%
Personal Services	direct and coordinate activities of workers or staff	8	32%
Personal Services	advise clients or customers	7	28%
Personal Services	collect payment	7	28%
Personal Services	sell merchandise	7	28%
Personal Services	use hair, cosmetic, or nail care instruments	7	28%
Personal Services	answer customer or public inquiries	6	24%
Personal Services	maintain production or work records	6	24%

Tools & Technologies

Not available.

(Production Occupations)

95 occupations were analyzed in the Production group and the knowledge area, "Mechanical," was found needed in 68 percent of all occupations (65/95) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Production	Mechanical	65	68%
Production	Production and Processing	63	66%
Production	Design	37	39%
Production	Engineering and Technology	37	39%
Production	Mathematics	34	36%
Production	Chemistry	21	22%
Production	English Language	18	19%
Production	Physics	18	19%
Production	Computers and Electronics	14	15%
Production	Education and Training	13	14%

(Production Occupations)

95 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Production	Handling and Moving Objects	93	98%
Production	Controlling Machines and Processes	89	94%
Production	Getting Information	89	94%
Production	Monitor Processes, Materials, or Surroundings	77	81%
Production	Inspecting Equipment, Structures, or Material	73	77%
Production	Performing General Physical Activities	69	73%
Production	Identifying Objects, Actions, and Events	60	63%
Production	Evaluating Information to Determine Compliance with Standards	57	60%
Production	Repairing and Maintaining Mechanical Equipment	38	40%
Production	Making Decisions and Solving Problems	31	33%

(Production Occupations - continued)

96 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Production	use hand or power tools	82	85%
Production	examine products or work to verify conformance to specifications	76	79%
Production	adjust production equipment/machinery setup	67	70%
Production	use precision measuring tools or equipment	64	67%
Production	monitor production machinery/equipment operation to detect problems	62	65%
Production	read work order, instructions, formulas, or processing charts	61	64%
Production	perform safety inspections in manufacturing or industrial setting	56	58%
Production	load or unload material or workpiece into machinery	55	57%
Production	measure, weigh, or count products or materials	53	55%
Production	understand technical operating, service or repair manuals	53	55%

(Production Occupations)

21 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Production	Hammers	14	67%
Production	Micrometers	14	67%
Production	Screwdrivers	14	67%
Production	Adjustable wrenches	13	62%
Production	Personal computers	13	62%
Production	Power drills	13	62%
Production	Locking pliers	12	57%
Production	Calipers	11	52%
Production	Data base user interface and query software	10	48%
Production	Desktop computers	10	48%
Production	Files	10	48%
Production	Forklifts	10	48%

(Protective Service Occupations)

16 occupations were analyzed in the Protective Service group and the knowledge area, "Public Safety and Security," was found needed in 100 percent of all occupations (16/16) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Protective Service	Public Safety and Security	16	100%
Protective Service	English Language	15	94%
Protective Service	Customer and Personal Service	14	88%
Protective Service	Law and Government	14	88%
Protective Service	Education and Training	12	75%
Protective Service	Telecommunications	12	75%
Protective Service	Administration and Management	11	69%
Protective Service	Clerical	11	69%
Protective Service	Psychology	11	69%
Protective Service	Computers and Electronics	9	56%

16 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Protective Service	Communicating with Supervisors, Peers, or Subordinates	16	100%
Protective Service	Getting Information	16	100%
Protective Service	Identifying Objects, Actions, and Events	16	100%
Protective Service	Making Decisions and Solving Problems	16	100%
Protective Service	Monitor Processes, Materials, or Surroundings	15	94%
Protective Service	Performing General Physical Activities	15	94%
Protective Service	Communicating with Persons Outside Organization	14	88%
Protective Service	Documenting/Recording Information	14	88%
Protective Service	Performing for or Working Directly with the Public	13	81%
Protective Service	Processing Information	13	81%

(Protective Service Occupations - continued)

17 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Protective Service	use oral or written communication techniques	17	100%
Protective Service	communicate details in protective services settings	13	76%
Protective Service	enforce laws, ordinances, or regulations	12	71%
Protective Service	prepare reports	12	71%
Protective Service	oversee work progress to verify safety or conformance to standards	11	65%
Protective Service	recognize public safety hazards	11	65%
Protective Service	follow law enforcement methods or procedures	10	59%
Protective Service	patrol or guard area or premises	10	59%
Protective Service	make decisions	9	53%
Protective Service	read maps	9	53%

Tools & Technologies

Not available.

(Sales Occupations)

19 occupations were analyzed in the Sales group and the knowledge area, "Customer and Personal Service," was found needed in 100 percent of all occupations (19/19) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Sales	Customer and Personal Service	19	100%
Sales	English Language	18	95%
Sales	Mathematics	16	84%
Sales	Administration and Management	15	79%
Sales	Sales and Marketing	15	79%
Sales	Economics and Accounting	13	68%
Sales	Clerical	11	58%
Sales	Education and Training	10	53%
Sales	Communications and Media	9	47%
Sales	Computers and Electronics	8	42%

19 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Sales	Establishing and Maintaining Interpersonal Relationships	19	100%
Sales	Getting Information	18	95%
Sales	Communicating with Persons Outside Organization	16	84%
Sales	Communicating with Supervisors, Peers, or Subordinates	16	84%
Sales	Performing for or Working Directly with the Public	16	84%
Sales	Identifying Objects, Actions, and Events	15	79%
Sales	Selling or Influencing Others	15	79%
Sales	Making Decisions and Solving Problems	14	74%
Sales	Resolving Conflicts and Negotiating with Others	14	74%
Sales	Updating and Using Relevant Knowledge	13	68%

(Sales Occupations - continued)

19 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Sales	use computers to enter, access or retrieve data	17	89%
Sales	maintain records, reports, or files	15	79%
Sales	provide customer service	15	79%
Sales	make presentations	12	63%
Sales	advise clients or customers	11	58%
Sales	conduct sales presentations	11	58%
Sales	use knowledge of written communication in sales work	11	58%
Sales	obtain information from individuals	10	53%
Sales	sell products or services	10	53%
Sales	use interpersonal communication techniques	10	53%

11 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Sales	Personal computers	11	100%
Sales	Data base user interface and query software	10	91%
Sales	Desktop computers	9	82%
Sales	Internet browser software	9	82%
Sales	Word processing software	9	82%
Sales	Spreadsheet software	8	73%
Sales	Calendar and scheduling software	7	64%
Sales	Electronic mail software	7	64%
Sales	Office suite software	7	64%
Sales	Customer relationship management CRM software	6	55%
Sales	Presentation software	6	55%

(Transportation Occupations)

39 occupations were analyzed in the Transportation group and the knowledge area, "Public Safety and Security," was found needed in 64 percent of all occupations (25/39) in the group.

Knowledge Areas are key educational or experience requirements for an occupation (e.g. Computers and Electronics).

Occupational Group	Knowledge Area	Occupations Requiring	Pct.
Transportation	Public Safety and Security	25	64%
Transportation	Transportation	23	59%
Transportation	Mechanical	22	56%
Transportation	English Language	20	51%
Transportation	Customer and Personal Service	17	44%
Transportation	Mathematics	17	44%
Transportation	Administration and Management	11	28%
Transportation	Production and Processing	11	28%
Transportation	Telecommunications	11	28%
Transportation	Education and Training	9	23%

39 occupations were analyzed. General Work Activities are types of job behaviors that occur across multiple occupations (e.g. interacting with computers).

Occupational Group	General Work Activity	Occupations Requiring	Pct.
Transportation	Getting Information	36	92%
Transportation	Identifying Objects, Actions, and Events	35	90%
Transportation	Handling and Moving Objects	34	87%
Transportation	Inspecting Equipment, Structures, or Material	33	85%
Transportation	Monitor Processes, Materials, or Surroundings	33	85%
Transportation	Communicating with Supervisors, Peers, or Subordinates	32	82%
Transportation	Performing General Physical Activities	29	74%
Transportation	Controlling Machines and Processes	25	64%
Transportation	Operating Vehicles, Mechanized Devices, or Equipment	25	64%
Transportation	Documenting/Recording Information	23	59%

(Transportation Occupations - continued)

40 occupations were analyzed. Detailed Work Activities are types of specific job behaviors or duties particular to an occupation (e.g. use computers to enter, access or retrieve data).

Occupational Group	Detailed Work Activity	Occupations Requiring	Pct.
Transportation	use two-way radio or mobile phone	26	65%
Transportation	perform safety inspections in transportation setting	21	53%
Transportation	use hand or power tools	20	50%
Transportation	maintain production or work records	16	40%
Transportation	maintain records, reports, or files	16	40%
Transportation	load, unload, or stack containers, materials, or products	14	35%
Transportation	move or fit heavy objects	14	35%
Transportation	direct and coordinate activities of workers or staff	13	33%
Transportation	understand technical operating, service or repair manuals	13	33%
Transportation	use local or regional geographical knowledge to transportation	12	30%

10 occupations were analyzed. Tools & Technologies are machines, equipment, tools, and information technologies that one could be expected to use in a particular occupation (e.g. Microsoft Access).

Occupational Group	Tool or Technology	Occupations Requiring	Pct.
Transportation	Forklifts	8	80%
Transportation	Jacks	6	60%
Transportation	Hammers	5	50%
Transportation	Hoists	5	50%
Transportation	Inventory management software	5	50%
Transportation	Personal computers	5	50%
Transportation	Data base user interface and query software	4	40%
Transportation	Dollies	4	40%
Transportation	Hand trucks or accessories	4	40%
Transportation	Slings	4	40%

Source: CWIA analysis of Occupation Information Network (O*NET) data.