Skills and Abilities by Program of Study

Architecture and Construction

Program of Study	SOC	Skills	Abilities
Architectural Design	**17-1011.00** Architects, Except Landscape and Naval	Critical Thinking, Speaking, Active Listening, Complex Problem-Solving Judgement and Decision Making	Visualization, Fluency of Ideas Deductive Reasoning Inductive Reasoning Information Ordering
Construction Management	**11-9021.00** Construction Managers	Active Listening, Critical Thinking, Speaking, Complex Problem-Solving, Coordination	Problem Sensitivity, Deductive Reasoning, Information Ordering Oral Comprehension, Oral Expression
Electrical Technology	**47-2111.00** Electricians	Troubleshooting, Repairing, Active Listening, Critical Thinking, Judgment and Decision Making	Problem Sensitivity, Deductive Reasoning, Inductive Reasoning, Near Vision, Oral Comprehension
Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR)	**49-9021.01** HVAC Mechanics and Installers	Equipment Maintenance, Installation, Quality Control Analysis, Troubleshooting, Operation Monitoring	Problem Sensitivity, Finger Dexterity, Near Vision Visualization, Manual Dexterity
Plumbing Technology	**47-2152.00** Plumbers, Pipefitters, and Steamfitters	Active Listening, Critical Thinking, Reading Comprehension, Speaking, Time Management	Arm-Hand Steadiness, Control Precision, Manual Dexterity, Near Vision, Multi-limb Coordination
Carpentry	**47-2031.01** Construction Carpenters	Active Listening, Monitoring, Speaking Active Learning, Complex Problem Solving	Manual Dexterity, Problem Sensitivity, Trunk Strength, Visualization, Information Ordering

Arts, A/V Technology, and Communications

Program of Study	SOC	Skills	Abilities
Audio/ Video Production	**27-4032.00** Film and Video Editors	Active Listening, Critical, Reading Comprehension Speaking, Time Management	Near Vision, Oral Comprehension, Written Comprehension, Information Ordering, Oral Expression
Animation	**27-1014.00** Multimedia Artist and Animators	Active Listening, Critical Thinking, Reading Comprehension, Speaking, Active Learning	Oral Comprehension, Oral Expression, Visualization, Written Comprehension, Near Vision
Graphic Design and Illustration	**27-1024.00** Graphic Designers	Active Listening, Critical Thinking, Speaking, Reading Comprehension, Active Learning	Near Vision, Originality, Fluency of Ideas, Oral Comprehension, Oral Expression
	15-1134.00 Web Developers	Programming, Critical Thinking, Complex Problem Solving, Operations Analysis, Reading Comprehension	Deductive Reasoning, Oral Comprehension, Near Vision, Problem Sensitivity, Written Comprehension
	43-9031.00 Desktop Publishers	Critical Thinking, Reading Comprehension, Active Listening, Judgment and Decision Making, Speaking	Near Vision, Information Ordering, Visualization, Category Flexibility, Fluency of Ideas

Business Management and Administration

Program of Study	SOC	Skills	Abilities
Business Management	**13-1111.00** Management Analyst	Oral Comprehension, Oral Expression, Written Comprehension, Inductive Reasoning, Written Expression	Provide Consultation and Advice to Others, Making Decisions and Solving Problems, Analyzing Data or Information, Getting Information, Communicating with Supervisors, Peers, or Subordinates
Business Information Management	**11-1021.00** General and Operations Managers	Active Listening, Coordination, Monitoring, Social Perceptiveness, Speaking	Oral Comprehension, Oral Expression, Problem Sensitivity, Speech Clarity, Written Comprehension

Education & Training

Program of Study	SOC	Skills	Abilities
Child Care and Development	**39-9011.00** Childcare Workers	Monitoring, Service Orientation, Social Perceptiveness, Active Listening, Coordination	Oral Comprehension, Oral Expression, Problem Sensitivity, Deductive Reasoning, Far Vision
	25-9041.00 Teacher Assistants	Active Listening, Speaking, Instructing, Social Perceptiveness, Coordination	Oral Comprehension, Oral Expression, Speech Clarity, Speech Recognition, Information Ordering
Teacher Education and Training	**25-9041.00** Teacher Assistants	Active Listening, Speaking, Instructing, Social Perceptiveness, Coordination	Oral Comprehension, Oral Expression, Speech Clarity, Speech Recognition, Information Ordering

Finance

Program of Study	SOC	Skills	Abilities
Accounting	**13-2011.01** Accountants	Active Listening, Critical Thinking, Mathematics, Reading Comprehension, Speaking	Mathematical Reasoning, Written Comprehension, Deductive Reasoning, Near Vision, Number Facility
	13-2011.02 Auditors	Active Listening, Reading Comprehension, Critical Thinking, Speaking, Writing	Deductive Reasoning, Number Facility, Oral Expression, Problem Sensitivity, Written Expression
Finance	**13-2051.00** Financial Analyst	Critical Thinking, Reading Comprehension, Active Listening, Mathematics, Speaking	Deductive Reasoning, Near Vision, Oral Comprehension, Oral Expression, Written Comprehension
	11-3031.00 Financial Managers	Active Listening, Critical Thinking, Monitoring, Reading Comprehension, Speaking	Oral Expression, Deductive Reasoning, Oral Comprehension, Problem Sensitivity, Speech Clarity
	19-3011.00 Economists	Critical Thinking, Mathematics, Reading Comprehension, Active Listening, Judgment and Decision Making	Written Comprehension, Deductive Reasoning, Inductive Reasoning, Mathematical Reasoning, Oral Comprehension
	15-2041.00 Statisticians	Mathematics, Critical Thinking, Reading Comprehension, Active Listening, Complex Problem Solving	Mathematical Reasoning, Number Facility, Inductive Reasoning, Deductive Reasoning, Near Vision

Government and Public Administration

Program of Study	SOC	Skills	Abilities
Public Management and Administration	**11-1011.00** Chief Executives	Judgment and Decision Making, Complex Problem, Critical Thinking, Speaking, Coordination	Oral Comprehension, Oral Expression, Written Comprehension, Deductive Reasoning, Speech Clarity
	19-3051.00 Urban and Regional Planners	Active Listening, Reading Comprehension, Critical Thinking, Judgment and Decision Making, Speaking	Oral Expression, Oral Comprehension, Written Comprehension, Written Expression, Deductive Reasoning
Foreign Service and Diplomacy	**55-1019.00** Military Officer Special and Tactical Operations Leaders, All Others	SOC does not collect data on the Military	SOC does not collect data on the Military
	19-3094.00 Political Scientists	Reading Comprehension, Speaking, Active Listening, Critical Thinking, Writing	Written Comprehension, Oral Expression, Inductive Reasoning, Oral Comprehension, Speech Clarity

Health Science

Program of Study	SOC	Skills	Abilities
Biomedical Science (PLTW)	**17-2031.00** Biomedical Engineers	Critical Thinking, Active Listening, Complex Problem Solving, Judgment and Decision Making, Reading Comprehension Abilities	Deductive Reasoning, Inductive Reasoning, Written Comprehension, Oral Comprehension, Problem Sensitivity
Biotechnology	**19-1029.02** Molecular and Cellular Biologists	Science, Reading Comprehension, Critical Thinking, Writing, Active Learning	Written Comprehension, Inductive Reasoning, Oral Comprehension, Category Flexibility, Deductive Reasoning
	19-4021.00 Biological Technicians	Reading Comprehension, Critical Thinking, Active Listening, Science, Active Learning	Inductive Reasoning, Near Vision, Oral Comprehension, Information Ordering, Oral Expression
Health Science: Certified Nursing Assistant	**31-1014.00** Nursing Assistant	Service Orientation, Active Listening, Social Perceptiveness, Coordination, Monitoring	Oral Comprehension, Problem Sensitivity, Near Vision, Oral Expression, Speech Recognition
	29-1141.00 Registered Nurses	Active Listening, Social Perceptiveness, Service Orientation, Speaking, Coordination	Oral Comprehension, Oral Expression, Problem Sensitivity, Deductive Reasoning, Inductive Reasoning
Health Science: General	**29-1062.00** Family and General Physicians	Critical Thinking, Active Listening, Judgment and Decision Making, Reading Comprehension, Writing	Problem Sensitivity, Oral Expression, Oral Comprehension, Inductive Reasoning, Written Comprehension

Hospitality and Tourism

Program of Study	SOC	Skills	Abilities
Culinary Arts	**35-1011.00** Chefs and Head Cooks	Monitoring, Coordination, Speaking, Management of Personnel Resources, Social Perceptiveness	Oral Comprehension, Oral Expression, Problem Sensitivity, Deductive Reasoning, Information Ordering
Hospitality Services	**11-9081.00** Lodging Managers	Active Listening, Service Orientation, Management of Personnel Resources, Social Perceptiveness, Speaking	Oral Expression, Oral Comprehension, Problem Sensitivity, Speech Clarity, Speech Recognition
	39-6012.00 Concierges	Service Orientation, Active Listening, Social Perceptiveness, Speaking, Coordination	Oral Expression, Oral Comprehension, Speech Clarity, Speech Recognition, Deductive Reasoning

Human Services

Program of Study	SOC	Skills	Abilities
Cosmetology	**39-5012.00** Hairdressers, Hairstylists, and Cosmetologists	Active Listening, Speaking, Service Orientation, Critical Thinking, Active Learning	Near Vision, Arm-Hand Steadiness, Finger Dexterity, Manual Dexterity, Oral Comprehension
Barbering	**39-5011.00** Barbers	Active Listening, Service Orientation, Social Perceptiveness, Speaking, Judgment and Decision Making	Arm-Hand Steadiness, Near Vision, Oral Comprehension, Finger Dexterity, Manual Dexterity

Information Technology

Program of Study	SOC	Skills	Abilities
Digital Media	**15-1134.00** Web Developer	Programming, Critical Thinking, Complex Problem Solving, Operations Analysis, Reading Comprehension	Deductive Reasoning, Oral Comprehension, Near Vision, Problem Sensitivity, Written Comprehension
Computer Maintenance Technician	**15-1151.00** Computer User Support Specialist	Critical Thinking, Active Listening, Complex Problem Solving, Reading Comprehension, Judgment and Decision Making	Deductive Reasoning, Information Ordering, Oral Comprehension, Written Comprehension, Inductive Reasoning
Networking	**15-1143.00** Computer Network Architect	Critical Thinking, Active Listening, Complex Problem Solving, Reading Comprehension, Judgment and Decision Making	Deductive Reasoning, Information Ordering, Oral Comprehension, Written Comprehension, Inductive Reasoning
Computer Science (PLTW)	**15-1131.00** Computer Programmers	Programming, Active Listening, Complex Problem Solving, Critical Thinking, Quality Control Analysis	Written Comprehension, Near Vision, Oral Comprehension, Deductive Reasoning, Inductive Reasoning
	15-1122.00 Information Security Analysts	Reading Comprehension, Critical Thinking, Active Listening, Complex Problem Solving, Speaking	Deductive Reasoning, Inductive Reasoning, Oral Comprehension, Problem Sensitivity, Written Comprehension
Computer Science (AP)	**15-1131.00** Computer Programmers	Programming, Active Listening, Complex Problem Solving, Critical Thinking, Quality Control Analysis	Written Comprehension, Near Vision, Oral Comprehension, Deductive Reasoning, Inductive Reasoning

Law and Public Safety, Corrections & Security

Program of Study	SOC	Skills	Abilities
Law Enforcement	**33-3051.00** Police Patrol Officers	Active Listening, Critical Thinking, Speaking, Monitoring, Social Perceptiveness	Problem Sensitivity, Deductive Reasoning, Inductive Reasoning, Oral Comprehension, Oral Expression

Manufacturing

Program of Study	SOC	Skills	Abilities
Welding	**51-4121.06** Welders, Cutters, and Welder Fitters	Critical Thinking, Operation and Control, Monitoring, Reading Comprehension	Arm-Hand Steadiness, Near Vision, Control Precision, Multi-limb Coordination, Problem Sensitivity
	51-4121.07 Solderes and Brazers	Near Vision, Finger Dexterity, Arm-Hand Steadiness, Control Precision, Manual Dexterity	Handling and Moving Objects, Getting Information, Inspecting Equipment, Structures, or Material, Controlling Machines and Processes, Performing General Physical Activities

Marketing

Program of Study	SOC	Skills	Abilities
Marketing	**11-2021.00** Marketing Managers	Active Learning, Active Listening, Critical Thinking, Reading Comprehension, Social Perceptiveness	Oral Comprehension, Oral Expression, Written Comprehension, Deductive Reasoning, Written Expression

Science, Technology, Engineering & Mathematics

Program of Study	SOC	Skills	Abilities
Aerospace Engineering (PLTW)	**17-2011.00** Aerospace Engineers	Critical Thinking, Reading Comprehension, Science, Active Listening, Complex Problem Solving	Written Comprehension, Deductive Reasoning, Inductive Reasoning, Information Ordering, Problem Sensitivity
Civil Engineering and Architecture (PLTW)	**17-2051.00** Civil Engineers	Critical Thinking, Reading Comprehension, Active Listening, Complex Problem Solving, Mathematics	Deductive Reasoning, Inductive Reasoning, Information Ordering, Oral Comprehension, Oral Expression
Computer Integrated Manufacturing (PLTW)	**17-3029.06** Manufacturing Engineering Technologist	Critical Thinking, Mathematics, Judgment and Decision Making, Systems Analysis, Active Learning	Information Ordering, Mathematical Reasoning, Problem Sensitivity, Written Comprehension, Category Flexibility
Computer Science and Software Engineering (PLTW)	**15-1133.00** Software Developer Systems Software	Reading Comprehension, Active Listening, Critical Thinking, Complex Problem Solving, Speaking	Oral Comprehension, Written Comprehension, Oral Expression, Deductive Reasoning, Inductive Reasoning
Digital Electronics (PLTW)	**17-2072.00** Electronics Engineers, Except Computer	Reading Comprehension, Critical Thinking, Active Learning, Active Listening, Complex Problem Solving	Written Comprehension, Oral Comprehension, Problem Sensitivity, Deductive Reasoning, Oral Expression
Environmental Sustainability (PLTW)	**17-2081.00** Environmental Engineers	Reading Comprehension, Critical Thinking, Active Learning, Active Listening, Complex Problem Solving	Written Comprehension, Oral Comprehension, Problem Sensitivity, Deductive Reasoning, Oral Expression

Transportation and Logistics

Program of Study	SOC	Skills	Abilities
Automotive Technology	**49-3023.01** Automotive Master Mechanics	Repairing, Equipment Maintenance, Operation Monitoring, Troubleshooting, Critical Thinking	Arm-Hand Steadiness, Control Precision, Finger Dexterity, Near Vision, Deductive Reasoning
	49-3023.02 Automotive Specialty Technicians	Repairing, Troubleshooting, Operation and Control, Critical Thinking, Judgment and Decision Making	Manual Dexterity, Arm-Hand Steadiness, Control Precision, Finger Dexterity, Near Vision

Glossary

Active Listening: Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Complex Problem Solving: Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Deductive Reasoning: The ability to apply general rules to specific problems to produce answers that make sense.

Fluency of Ideas: The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Inductive Reasoning: The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).

Information Ordering: The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Judgment and Decision Making: Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Speaking: Talking to others to convey information effectively.

Visualization: The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Troubleshooting — Determining causes of operating errors and deciding what to do about it.

Repairing — Repairing machines or systems using the needed tools.

Near Vision — The ability to see details at close range (within a few feet of the observer).

Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

Installation — Installing equipment, machines, wiring, or programs to meet specifications.

Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.
Visualization — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Time Management — Managing one's own time and the time of others.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.

Multi-limb Coordination — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).

Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.

Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).

Programming — Writing computer programs for various purposes.

Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Operations Analysis — Analyzing needs and product requirements to create a design.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways

Provide Consultation and Advice to Others — Providing guidance and expert advice to management or other groups on technical, systems-, or process-related topics.

Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.

Analyzing Data or Information — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts.

Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources.

Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.

Speech Clarity — The ability to speak clearly so others can understand you.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Service Orientation — Actively looking for ways to help people.

Far Vision — The ability to see details at a distance.

Mathematics — Using mathematics to solve problems.

Mathematical Reasoning — The ability to choose the right mathematical methods or formulas to solve a problem.

Number Facility — The ability to add, subtract, multiply, or divide quickly and correctly.

Science — Using scientific rules and methods to solve problems.

Service Orientation — Actively looking for ways to help people.

Speech Recognition — The ability to identify and understand the speech of another person.

Management of Personnel Resources — Motivating, developing, and directing people as they work, identifying the best people for the job.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.

Finger Dexterity — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

Manual Dexterity — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.

Operations Analysis — Analyzing needs and product requirements to create a design.

 Programming — Writing computer programs for various purposes.

Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

Operation and Control — Controlling operations of equipment or systems.

Arm-Hand Steadiness — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
Handling and Moving Objects — Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.

Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources.

Inspecting Equipment, Structures, or Material — Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.

Controlling Machines and Processes — Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).

Performing General Physical Activities — Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.

Repairing — Repairing machines or systems using the needed tools.

Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.

Troubleshooting — Determining causes of operating errors and deciding what to do about it.