

The Revised Handbook for Analyzing Jobs



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Lynn Martin, Secretary

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Roberts T. Jones
Assistant Secretary for Employment Training
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CHAPTER 4

WORK FIELDS

Work Fields, a component of Work Performed, are categories of technologies that reflect how work gets done and what gets done as a result of the work activities of a job: the purpose of the job. There are 96 Work Fields identified for use by the USES for classification of all jobs in the economy in terms of what gets done on the job.

Work Fields range from the specific to the general and are organized into homogeneous groups, based on related technologies or objectives, such as the movement of materials, the fabrication of products, the use of data, and the provision of services. Each Work Field is identified by a three-digit code, a brief descriptive title, and a definition. In many cases, a comment is included which enlarges upon the definition and limits or extends the application of the Work Field. Also, cross-references are frequently included which distinguish one Work Field from other related Work Fields.

Following the definition is a list of methods verbs which illustrate the application of the Work Field. This list is not intended to be exhaustive, but merely representative, of the ways in which the objective of the Work Field can be accomplished. Note that the methods verbs listed as examples do not include those appearing in the title or definition for that Work Field, inasmuch as they are implicit in the Work Field. Some methods verbs are used as illustrative examples in more than one Work Field; however, their meanings may differ in the various listings.

It is important to understand that the concept of Work Fields involves consideration not only of the overall objective or purpose of a job, but also how the objective is attained; that is, the means by which the objective of the job is met. MTEWA are instruments and devices used by the worker to achieve the objective of the job. MTEWA are directly related to, and help describe, specific methods verbs.

The job of a worker who performs in a first-line supervisory or helper capacity is assigned the same Work Field(s) as that of the jobs of the workers supervised or helped, because the technological objectives are the same as those of the workers supervised or helped. It is incorrect to assign Work Field 295-Administering to such supervisory jobs; or 011-Material Moving to helper jobs. For Things jobs that are machine-related, the Work Field is based upon what the machine does. For example, the job of a worker who tends a machine that smooths and polishes bores of shotgun barrels is assigned Work Field 051-Abrading. Prefixes, such as **un** or **re**, are implicit in the definition of a Work Field. For example, **Material Moving** includes unloading and removing; **Filling-Packing-Wrapping** includes unpacking, unwrapping, etc.

COMBINATION WORK FIELDS

Combination Work Fields are general categories of Work Fields that contain combinations of Work Fields to cover jobs involving various technologies. For example, Structural Fabricating-Installing-Repairing includes combinations of such specific Work Fields as Abrading, Nailing, Riveting, and Welding. However, in some situations, the analyst may elect to assign the specific Work Fields, rather than a combination Work Field, to express the overall objective of a job.

PROCEDURE FOR ASSIGNING WORK FIELDS

The core of the procedure for assigning Work Fields is the sentence analysis technique. The object of such assignment is to formulate sentences containing words illustrative of the Work Field(s). The resulting sentence must provide an integrated picture that answers the "how" and "why" sufficiently for classification purposes. The sentence analysis technique is outlined in Chapter 6.

Experienced analysts have found the following steps to be helpful in assigning Work Fields.

- Step 1. Study the job-worker situation to determine the method(s) specific to the accomplishment of the overall job objective. As has been pointed out in this section, many verbs are used to signify specific methods which relate to quite different objectives. Thus it is essential to check the particular use of the verb against the definition of the Work Field which is supposed to include it. The listing of methods verbs accompanying each Work Field definition is by no means exhaustive, and it is entirely possible that the analyst will use others. However, make certain that they have methodological value in a particular context and are not simply explanatory or reflective of the end results of the job. The analyst must always keep in mind that Work Fields are broader in scope than the intermediate objectives reflected in individual work element statements in a description of a job. The total of all the intermediate objectives contained in the Description of Tasks should lead to an understanding of the assigned Work Field(s).
- Step 2. Select the Work Field that most adequately encompasses the specific methodology of the job-worker situation. Although it is possible to select more than one Work Field for almost any job-worker situation (e.g., nearly all job-worker situations involving Things require Material Moving in addition to whatever else is done), this will not be necessary if the primary Work Field is adequately comprehensive. However, there will be instances where it is necessary to assign more than one Work Field. When a combination Work Field best reflects the overall objective of the job, specific Work Fields encompassed by the Combination Work Field are not assigned.
- Step 3. Record in Item 8 of the JAR the code number(s) and title(s) of the Work Field(s) selected that reflect(s) the analysis of the data.

ALPHABETICAL LISTING OF WORK FIELDS

051	Abrading	272	Litigating
291	Accommodating	004	Logging
295	Administering	057	Lubricating
298	Advising-Counseling	033	Machining*
002	Animal Propagating	091	Masoning
211	Appraising	011	Material Moving
262	Artistic Painting-Drawing	121	Mechanical Fabricating-Installing-Repairing*
141	Baking-Drying	131	Melting
071	Bolting-Screwing	292	Merchandising-Sales
053	Boring	055	Milling-Turning-Planing
153	Brushing-Spraying	005	Mining-Quarrying-Earth Boring
034	Butchering-Meat Cutting	143	Mixing
094	Caulking	136	Molding
132	Casting	072	Nailing
052	Chipping	232	Numerical Recording-Recordkeeping
031	Cleaning	095	Paving
161	Combing-Napping	201	Photographing
263	Composing-Choreographing	003	Plant Cultivating
146	Cooking-Food Preparing	134	Pressing-Forging
142	Crushing-Grinding	191	Printing
233	Data Processing	147	Processing-Compounding*
135	Die Sizing	293	Protecting
202	Developing-Printing	014	Pumping
144	Distilling	251	Researching
242	Drafting	073	Riveting
111	Electrical-Electronic Fabricating-Installing Repairing*	152	Saturating
154	Electroplating	056	Sawing
244	Engineering	145	Separating
183	Engraving	171	Sewing-Tailoring
297	Entertaining	054	Shearing-Shaving
182	Etching	083	Soldering-Brazing
007	Excavating-Clearing-Foundation Building	162	Spinning
062	Fastening	021	Stationary Engineering
041	Filling-Packing-Wrapping	221	Stock Checking
061	Fitting-Folding	102	Structural Fabricating-Installing-Repairing*
082	Flame Cutting-Arc Cutting-Beam Cutting	264	Styling
063	Gluing-Laminating	032	Surface Finishing
294	Health Caring-Medical	243	Surveying
133	Heat Conditioning	281	System Communicating
001	Hunting-Fishing	296	Teaching
151	Immersing-Coating	013	Transporting
192	Imprinting	166	Tufting
282	Information Giving	101	Upholstering*
212	Inspecting-Measuring-Testing	231	Verbal Recording-Record Keeping
271	Investigating	164	Weaving
165	Knitting	081	Welding
092	Laying-Covering	163	Winding
241	Laying Out	261	Writing

*Combination Work Fields

WORK FIELDS ORGANIZATION

The Work Fields have been organized into the following groups on the basis of similar technologies. This arrangement may be helpful in ensuring the applicability of the Work Field(s) selected for the job being analyzed.

ORGANIZATION	DESCRIPTION	
001 002 003 004 005	Hunting-Fishing Animal Propagating Plant Cultivating Logging Mining-Quarrying-Earth Boring	Securing, producing, and cultivating raw materials, products, and animals (livestock or game) on and below the surface of the earth; usually outdoor work.
007	Excavating-Clearing-Foundation Building	Grading surfaces and building foundations.
011 013 014	Material Moving Transporting Pumping	Moving materials and people by hand and machine power.
021	Stationary Engineering	Producing and distributing heat, power, and conditioned air.
031	Cleaning	Industrial, commercial, and domestic cleaning.
032	Surface Finishing	Shaping, pressing, and stretching articles, usually with heat and steam, under tension or pressure.
033	Lubricating	Coating objects with liquid or dry lubricants.
034	Butchering-Meat Cutting	Slaughtering livestock and preparing meats for marketing.
041	Filling-Packing-Wrapping	Packaging materials and products for distribution and storage.
051 052 053 054 055 056 057	Abrading Chipping Boring Shearing-Shaving Milling-Turning-Planing Sawing Machining	Working with machines and handtools to cut and shape materials and objects usually made from wood, metal, and plastics. Can also involve assembly of objects.
061 062 063	Fitting-Folding Fastening Gluing-Laminating	Folding and assembling parts and materials, usually light, by means of fitting together or joining with sticky compounds and fastening devices, such as staples, grommets, and snaps.
071 072 073	Bolting-Screwing Nailing Riveting	Assembling parts and materials, usually of metal, wood, and plastics, by means of screws, nails, rivets, or other fasteners.
081 082 083	Welding Flame Cutting-Arc Cutting-Beam Cutting Soldering-Brazing	Joining or cutting materials by means of a gas flame, electric arc, laser beam, combination welding process, and soldering.

ORGANIZATION	DESCRIPTION	
091 092 094 095	Masonry Laying-Covering Caulking Paving	Building and repairing structures and surfaces, and assembling structural parts, usually working with brick, cement, mortar, stone, and other building materials.
101 102	Upholstering Structural Fabricating-Installing- Repairing	All-around fabricating, installing, and repairing of structures, interior fittings, and electrical, electronic, and mechanical units.
111	Electrical-Electronic Fabricating-Installing- Repairing	
121	Mechanical Fabricating-Installing- Repairing	
131 132 133 134 135 136	Melting Casting Heat Conditioning Pressing-Forging Die Sizing Molding	Compounding, melting, heat conditioning, and shaping objects, usually metal and plastics, by methods which involve heat or pressure or force.
141 142 143 144 145 146 147	Baking-Drying Crushing-Grinding Mixing Distilling Separating Cooking-Food Preparing Processing-Compounding	Processing various materials, in solid, fluid, semifluid, and gaseous states, during production process.
151 152 153 154	Immersing-Coating Saturating Brushing-Spraying Electroplating	Coating and impregnating materials and products to impart decorative and protective finish and other specific qualities.
161 162 163 164 165 166	Combing-Napping Spinning Winding Weaving Knitting Tufting	Converting fiber raw stock into yarn and thread, and interlacing and otherwise working yarns to form woven, nonwoven, knitted, and tufted fabrics. Winding also includes coiling any material about an object.
171	Sewing-Tailoring	Joining, mending, and fastening materials, usually with needle and thread, and fitting and adjusting parts.
182 183	Etching Engraving	Cutting designs and letters into materials and products by sandblasting, applying acids (Etching), and action of sharp pointed tools (Engraving).
191 192	Printing Imprinting	Transferring letters and designs onto paper and other material, by use of ink and pressure; includes setting type and preparing plates.
201 202	Photographing Developing-Printing	Taking pictures and processing film.
211 212	Appraising Inspecting-Measuring-Testing	Evaluating and estimating the quality, quantity, and value of things and data; ascertaining the physical characteristics of materials and objects.

	ORGANIZATION	DESCRIPTION
221	Stock Checking	Receiving, storing, issuing, shipping, requisitioning, and accounting for stores of materials.
231	Verbal Recording-Record Keeping	Preparing and maintaining verbal and numerical records.
232	Numerical Recording-Record Keeping	
233	Data Processing	Planning, developing, testing, evaluating, and executing a systematic sequence of activities or operations to process alphabetic, numeric, and symbolic data or to solve problems by means of computer systems.
241	Laying Out	Plotting, tracing, and drawing diagrams and other directive graphic information for use in design and production; designing and constructing machinery, structures, and systems.
242	Drafting	
243	Surveying	
244	Engineering	
251	Researching	Controlled exploration of fundamental areas of knowledge, by means of critical and exhaustive investigation and experimentation.
261	Writing	Creating, expressing, or depicting one's own ideas in various media.
262	Artistic Painting-Drawing	
263	Composing-Choreographing	
264	Styling	
271	Investigating	Obtaining and evaluating data for purposes of completing business and legal procedures.
272	Litigating	
281	System Communicating	Providing and effecting the transmission of information to other persons, indirectly (by electrical or electronic media) and directly (by voice or written statement).
282	Information Giving	
291	Accommodating	Dealing with people to provide services of various types.
292	Merchandising-Sales	
293	Protecting	
294	Health Caring-Medical	
295	Administering	
296	Teaching	
297	Entertaining	
298	Advising-Counseling	

LIST OF COMBINATION WORK FIELDS

The following is a list of combination Work Fields and the corresponding component Work Fields of which they are comprised.

COMBINATION WORK FIELDS	COMPONENT WORK FIELDS
057 Machining	Abrading (051), Boring (053), Chipping (052), Milling-Turning-Planing (055), Sawing (056), and Shearing-Shaving (054).
101 Upholstering	Bolting-Screwing (071), Gluing-Laminating (063), Nailing (072), Sewing-Tailoring (171), and Shearing-Shaving (054).
102 Structural Fabricating-Installing-Repairing	Abrading (051), Bolting-Screwing (071), Boring (053), Brushing-Spraying (153), Caulking (094), Chipping (052), Fastening (062), Fitting-Folding (061), Flame Cutting-Arc Cutting-Beam Cutting (082), Gluing-Laminating (063), Immersing-Coating (151), Laying-Covering (092), Masoning (091), Milling-Turning-Planing (055), Molding (136), Nailing (072), Paving (095), Sawing (056), Sewing-Tailoring (171), Shearing-Shaving (054), Soldering-Brazing (083), and Welding (081).
111 Electrical-Electronic Fabricating-Installing/Repairing	Abrading (051), Bolting-Screwing (071), Boring (053), Fitting-Folding (061), Nailing (072), Riveting (073), Soldering-Brazing (083), Welding (081), and Winding (163).
121 Mechanical Fabricating-Installing-Repairing	Abrading (051), Bolting-Screwing (071), Boring (053), Brushing-Spraying (153), Chipping (052), Fastening (062), Fitting-Folding (061), Flame Cutting-Arc Cutting-Beam Cutting (082), Gluing-Laminating (063), Immersing-Coating (151), Milling-Turning-Planing (055), Nailing (072), Pressing-Forging (134), Riveting (073), Sawing (056), Sewing-Tailoring (171), Shearing-Shaving (054), Soldering-Brazing (083), and Welding (081).
147 Processing-Compounding	Baking-Drying (141), Distilling (144), Heat Conditioning (133), Melting (131), Mixing (143), Saturating (152), and Separating (145).

WORK FIELDS DESCRIPTIONS

001 HUNTING-FISHING

Capturing and killing wild land and marine animals for such purposes as bounty, conservation, research, and for their value as meat or skin.

Baiting	Dredging	Seining	Tonging
Dipping	Hooking	Shooting	Trapping
Dragging	Raking	Spearing	Trawling

Typical Occupations: Fisher; Trapper; Dredger; Fishing-Boat Captain; Deckhand.

002 ANIMAL PROPAGATING

Raising and caring for livestock, poultry, fish, and other animal life and collecting eggs, milk, wool, honey, and other animal products by methods which may include those specific to other work fields.

Bailing	Feeding	Netting	Spawning
Branding	Fumigating	Pelting (mink)	Sterilizing
Candling	Grooming	Rounding Up	Training
Caponizing	Hatching	Separating	Vaccinating
Castrating	Herding	Sexing (poultry)	Washing (eggs)
Debeaking	Incubating	Shearing (sheep)	Watering
Dehorning	Inseminating	Shoeing (horses)	
Disinfecting	Milking	Skinning	
Dredging (shellfish)	Milting	Sowing	

Typical Occupations: Animal Breeder; Dairy Farmer; Poultry-Farm Worker; Beekeeper; Artificial Inseminator; Milker; Animal Herder.

003 PLANT CULTIVATING

Planting, nurturing, harvesting, and otherwise caring for plant life by methods which may include those specific to other work fields.

Bailing	Fertilizing	Plowing	Stringing
Budding	Gathering	Potting	Thinning
Conditioning (soil)	Grading	Propagating	Threshing
Culling	Grafting	Pruning	Tilling
Curing (tobacco)	Harrowing	Raking	Transplanting
Cutting	Hoeing	Reaping	Watering
Detasseling	Husking	Shelling	Weeding
Digging	Irrigating	Sorting	Winnowing
Disking	Mowing	Sowing	
Drying	Mulching	Spading	
Dusting	Picking	Spraying	

Typical Occupations: Farm-Equipment Operator; Landscaper; Gardener; Crop Farmer; Farm Hand; Harvest Worker; Nursery Worker.

004 LOGGING

Extracting wood and forest products from woodlands, including felling and cutting of trees into logs or other products and collecting gums, saps, or resins.

Boxing	Felling	Riving	Towing
Bucking	Hewing	Sawing	
Chopping	Notching	Skidding	
Cruising	Rafting	Splitting	

Typical Occupations: Logger; Tree-Shear Operator; River; Laborer, Tree Tapping; Supervisor, Felling Bucking.

005 MINING-QUARRYING-EARTH BORING

Extracting minerals, oil, gas, water, and stone from the earth. Includes drilling earth formations to obtain core samples.

Blasting Breaking	Chipping Crushing	Digging Panning	Perforating
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Typical Occupations: Miner; Driller; Blaster; Quarry Supervisor; Mine Supervisor; Well Driller; Quarry Worker; Prospector.

007 EXCAVATING-CLEARING-FOUNDATION BUILDING

Removing and distributing earth materials, such as dirt, gravel, rock, and sand; grading surfaces; dredging ditches, canals, and marine channels; drilling holes in earth and through rock formations for purposes other than blasting and mineral extractions; and driving pilings and shafts into earth for structural footings. Includes clearing away obstacles preparatory to construction and logging, and controlling growth of weeds, trees, bushes, etc., to facilitate maintenance of utility lines and rights-of-way.

Backfilling Burning	Cutting Digging	Raking Trimming
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Typical Occupations: Tree Trimmer; Pile-Driver Operator; Dredge Operator; Dredging Inspector; Brush Clearer; Grade Operator; Levee Superintendent; Pile-Driving Supervisor; Motor Grader Operator; Bulldozer Operator.

011 MATERIAL MOVING

Conveying materials manually and by use of machines and equipment, such as cranes, hoists, conveyors, industrial trucks, elevators, winches, and handtrucks. Distinguish from Transporting (013), which involves conveyance of passengers and materials by common carrier.

Carrying Dragging Drawing Dumping Floating	Forking Hanging Hoisting Lifting Loading	Relaying Shackling Shoveling Skidding Throwing	Unloading Wheeling
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Typical Occupations: Fork-Lift Operator; Crane Operator; Stevedore; Freight-Elevator Operator; Hoist Operator; Conveyor Worker.

013 TRANSPORTING

Conveying passengers and materials by truck, bus, airplane, train, ship, automobile, and other vehicles. Distinguish from Material Moving (011), which involves moving materials by conveyances other than common carriers.

Driving Flying	Landing Piloting	Steering Stoking	Taking Off
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Typical Occupations: Vehicle Driver; Airplane Pilot; Marine-Vessel Captain; Locomotive Engineer.

014 PUMPING

Raising, lowering, and moving gases, liquids, and solids by suction, pressure, and vacuum within a piping system.

Draining Drawing (off or out)	Expelling Propelling	Siphoning Sucking
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Typical Occupations: Pump Operator-Gauger; Terminal Supervisor; Oil Dispatcher.

021 STATIONARY ENGINEERING

Producing and distributing heat, power, and conditioned air.

Compressing (air) Cooling	Firing Generating	Humidifying Purifying	Refrigerating Ventilating
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Typical Occupations: Boiler Operator; Stationary Engineer; Compressor Operator; Powerhouse Attendant; Power Dispatcher.

031 CLEANING

Cleaning objects and premises by methods such as washing with water, steam, and cleaning agents; brushing, wiping, sweeping, raking, and scraping; using suction, compressed air, and ultrasonic equipment.

Agitating Beating Blowing Chipping Dusting Filtering	Fluffing Flushing Hosing Immersing Mopping Scalding	Scrubbing Shaking Shoveling Soaking Sopping Sponging	Spotting Steaming Straining Tumbling
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Typical Occupations: Laundry Worker; Dishwasher; Equipment Cleaner; Janitor; Housekeeper; Cleaning Supervisor.

032 SURFACE FINISHING

Removing wrinkles from, restoring shape to, and giving finish to articles made of fabric, fur, leather, straw, paper, and similar materials by application of tension or pressure (usually accompanied by heat or steam). Includes burning excess materials from surfaces of articles.

Blocking (hats) Brushing Calendering	Gassing Ironing Pressing	Rubbing Singeing Steaming	Stretching Texturing
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Typical Occupations: Ironer; Presser (Hand and Machine); Hat Blocker; Tenter-Frame Operator; Singeing-Machine Operator; Calender-Machine Operator.

033 LUBRICATING

Coating objects with lubricants to reduce friction of moving parts and to prevent sticking.

Dusting Graphiting	Greasing Oiling	Spraying Swabbing	Waxing
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Typical Occupations: Oiler; Greaser; Automobile Lubricator.

034 BUTCHERING-MEAT CUTTING

Killing and cutting up animals, poultry, finfish, and shellfish, and dressing or processing meats for marketing.

Bleeding Boning Cleaving Eviscerating	Flushing Gutting Plucking Sawing	Scraping Shackling Shaving Singeing	Skinning Striking Stripping Trimming
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Typical Occupations: Butcher; Meat Cutter; Poultry Worker; Slaughterhouse Worker; Hide Puller; Dehairing-Machine Operator; Fish Cleaner.

041 FILLING-PACKING-WRAPPING

Pouring dry and liquid materials and products into containers; enveloping and enclosing materials and products in paper, cellophane, burlap, and other materials; putting materials and products into containers; or closing and sealing containers. Includes unpacking, unwrapping, and refilling.

Banding	Dropping	Moistening	Strapping
Boxing	Dumping	Padding	Stripping
Bunching	Folding	Peeling Off	Twisting
Channeling	Funneling	Securing	Tying
Covering	Injecting	Spooning	
Draping	Inserting	Stacking	

Typical Occupations: Packager; Filling-Machine Operator; Baling-Machine Operator; Wrapping-Machine Operator; Packaging Supervisor; Bagger.

051 ABRADING

Smoothing, polishing, sharpening, or cutting materials by use of abrasives; and cutting letters and designs into objects and structures by the wearing-away action of abrasives. Distinguish from Cleaning (031), in which abrasives may be used to remove foreign substances.

Blowing	Frosting	Pouncing	Sandpapering
Buffing	Grinding	Rubbing	Scraping
Filing	Honing	Sandblasting	
Finishing	Lapping	Sanding	

Typical Occupations: Sandblaster; Grinder; Polisher; Honer; Glass Beveler; Tumbling-Machine Operator; Bit Sharpener; Sander.

052 CHIPPING

Cutting away flakes and fragments with hatchets and chisels struck with hammers or similarly activated by a power source, such as compressed air. Distinguish from Milling-Turning-Planing (055), in which rotary or chisel-like cutters are used but without percussion.

Breaking Up	Chiseling	Gouging	Striking
Broaching	Chopping	Hewing	Wedging

Typical Occupations: Chiseler; Chipper; Air-Hammer Operator.

053 BORING

Making, enlarging, and threading holes in material (other than earth) by means of rotary cutting tools advanced into the material. Distinguish from piercing by Pressing-Forging (134), in which tools do not rotate.

Countersinking	Piercing	Tapping
Drilling	Reaming	

Typical Occupations: Boring-Machine Operator; Drill-Press Operator; Reaming-Machine Tender; Countersinker; Driller.

054 SHEARING-SHAVING

Cutting, severing, slicing, and shaving materials, using keen-edged cutting tools. Includes cutting glass, plastics, and other materials with heated wires. Distinguish from Sawing (056), which involves use of serrated tools to cut materials by wearing out a kerf.

Clipping	Die Cutting	Snipping	Trimming
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Typical Occupations: Hot-Wire Cutter; Die Cutter; Fabric Cutter; Fabric Trimmer; Slitting-Machine Operator; Shearing-Machine Operator; Cutting-Department Supervisor; Book Trimmer; Shoe-Parts Cutter; Plastic-Material Cutter; Skiving-Machine Operator.

055 MILLING-TURNING-PLANING

Shaping materials by the paring and smoothing action of rigid cutting tools (usually fed into rotating materials) and rotating cutting tools (usually fed into stationary materials). Distinguish from Chipping (052), in which the cutting away of flakes and fragments is accomplished by chisel-like tools actuated by a percussive power source.

Broaching	Grooving	Rabbeting	Shaving
Dadoing	Mortising	Routing	Tonguing
Gaining	Profiling	Scarfig	Undercutting

Typical Occupations: Lathe Operator; Milling-Machine Operator; Machine Setter; Wood-Carving-Machine Operator; Tooth Cutter; Gear Cutter; Screw-Machine Operator.

056 SAWING

Severing and shaping materials by the reciprocal or rotary cutting action of a blade which wears out a kerf. The blade may be serrated or be made of, or coated with, abrasives. Excluded from this work field is the felling of trees, which is covered by Logging (004). Distinguish from Shearing-Shaving (054), which includes a severing function but without wearing a kerf.

Crosscutting	Gaining	Mitering	Tenoning
Dadoing	Grooving	Ripsawing	

Typical Occupations: Cut-Off-Saw Operator; Band-Saw Operator; Gang Sawyer; Kerf-Machine Operator; Last Trimmer.

057 MACHINING

Shaping parts by any combination of the following work fields: Abrading (051), Boring (053), Chipping (052), Milling-Turning-Planing (055), Sawing (056), and Shearing-Shaving (054).

Forming

Typical Occupations: Shop Machinist; Tool-and-Die Maker; Shop Supervisor; Job Setter.

061 FITTING-FOLDING

Folding, joining, and fitting parts without the use of bolts, screws, nails, rivets, solder, welding equipment, and glue. This work field includes such job activities as interlacing and joining parts, such as boards and precut and fabricated wood or metal units; fitting together parts of shoes; putting coils and insulation into frames to form stators; assembling parts of mechanical pencils; pressing bushings into bearing housings; and putting together pins and buttons to form campaign badges. Distinguish from Fastening (062), which involves joining materials by fastening with staples, eyelets, grommets, and snaps.

Bending	Hanging	Packing	Springing
Bracing	Inlaying	Pulling	Squeezing
Clamping	Inserting	Pushing	Tapping
Clinching	Interweaving	Shoving	Threading
Creasing	Inverting	Sliding	Tightening
Crimping	Jamming	Slipping	Twisting
Hammering	Looping	Splicing	Wedging

Typical Occupations: Pen Assembler; Folder; Stringer; Basket Maker; Clock-and-Watch Parts Assembler; Pleater.

062 FASTENING

Joining lightweight material (such as paper, cardboard, and fabrics) with fasteners, such as staples, eyelets, grommets, and snaps. Assignment is not made when the joining of materials involves methods applicable to other work fields, such as Bolting-Screwing (071), Fitting-Folding (061), Gluing-Laminating (063), Nailing (072), Riveting (073), Soldering-Brazing (083), and Welding (081).

Clinching	Inserting	Shoving	Threading
Compressing	Inverting	Sliding	Tightening
Creasing	Jamming	Slipping	Twisting
Crimping	Looping	Splicing	Wedging
Hammering	Pressing	Springing	
Hanging	Pulling	Squeezing	
Inlaying	Pushing	Tapping	

Typical Occupations: Stitching-Machine Operator; Stapler; Eyelet-Machine Operator; Wreath Maker.

063 GLUING-LAMINATING

Fastening together parts with sticky substances, such as cement, glue, paste, gum, and other adhesive media. Includes bonding of parts by application of heat and pressure.

Brushing	Daubing	Pressing	Stretching
Clamping	Fusing	Rolling	Wetting
Compressing	Moistening	Spreading	

Typical Occupations: Cementer; Glue-Machine Operator; Combining-Machine Operator; Bonding-Machine Operator; Cloth Laminator; Hot-Press Worker; Heat-Sealing-Machine Operator.

071 BOLTING-SCREWING

Fastening together parts with threaded bolts and screws fitted through adjoining holes previously bored and threaded, or by forcing threaded screws through parts. In some instances, holes may be partially bored but not prethreaded to accommodate screws, or bolts may be secured in place by inserting them in threaded nuts. Distinguish from Riveting (073), which involves the use of nonthreaded bolts to fasten parts.

Tapping	Threading	Tightening	Twisting
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Typical Occupations: Clock-and-Watch-Parts Assembler; Power-Tool Operator; Vehicle-Light Assembler; Screw Remover; Wooden-Heel Attacher; Spring Assembler.

072 NAILING

Fastening together parts with devices, such as nails, tacks, spikes, brads, and staples. Distinguish from Riveting (073), in which a nonthreaded fastening device is secured by hammering and pressing to spread protruding shank ends. Distinguish from Fastening (062), where light materials are joined.

Driving (nails)	Stapling	Tacking
Hammering	Striking	

Typical Occupations: Nailer; Shoe-Parts Assembler; Stapler; Tack Puller; Tacker.

073 RIVETING

Fastening parts with headed, malleable bolts, pins, and rods fitted through previously bored holes, and hammering and pressing shank ends. Distinguish from Fastening (062), which involves joining light materials.

Bucking	Dimpling	Hammering	Squeezing
Clinching	Driving	Peening	

Typical Occupations: Riveter; Riveting Inspector.

081 WELDING

Joining metal, glass, and plastic parts by heating surfaces to induce fusion with or without the application of filler materials and pressure. Forge-welding, which involves applying sharp blows, is covered by Pressing-Forging (134). Distinguish from Flame Cutting-Arc Cutting-Beam Cutting (082), in which similar equipment is used to sever parts, and from Soldering-Brazing (083), which involves joining parts by the adhesion of solder.

Burning	Melting	Stirring
Fusing	Puddling	

Typical Occupations: Welder; Welding Supervisor; Welding Inspector; Lead Burner.

082 FLAME CUTTING-ARC CUTTING-BEAM CUTTING

Severing materials by subjecting materials to intense heat, using equipment, such as oxyacetylene torches, electric-arc cutting equipment, and laser beams. Distinguish from Welding (081), which may use the same equipment but for the purpose of joining materials. Cutting by use of hot-wire is included in Shearing-Shaving (054).

Burning	Scarfiging	Scraping
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Typical Occupations: Flame Cutter; Scrap Burner; Scarfiging Operator; Laser-Beam Cutter.

083 SOLDERING-BRAZING

Joining metal parts or filling depressions in metal with molten solder or brazing alloy. Distinguish from Welding (081), in which parts are joined by fusion under heat.

Dipping	Melting	Smoothing	Sweating
Heating	Rubbing	Spreading	

Typical Occupations: Brazer; Solderer; Furnace Operator; Brazing Assembler.

091 MASONING

Constructing structures of brick, stone, marble, and similar building materials, usually set in beds of mortar; and spreading and smoothing plaster, mortar, stucco, and similar materials to form and cover structural elements. Distinguish from Laying-Covering (092), in which materials are fastened to surfaces as finish and insulating coverings.

Bricking	Imbedding	Rubbing	Tamping
Brushing	Patching	Scraping	Tapping
Finishing	Pointing	Setting	Tearing Out
Floating	Pressing	Spattering	Wetting

Typical Occupations: Mason; Plasterer; Plastering Supervisor; Concrete Finisher.

092 LAYING-COVERING

Covering the surface of structural units, such as roofs, floors, pipes, duct work, tanks, boilers, and refrigeration and air-conditioning equipment, or objects with materials in the form of sheets, blocks, tile, and rolled goods (including insulation bats). Distinguish from Masoning (091), which involves constructing as well as covering structural units; from Gluing-Laminating (063), which involves fastening parts together to assemble rather than cover; and from Caulking (094), which includes filling spaces with loose insulating materials.

Cementing	Pasting	Rolling	Tamping
Gluing	Patching	Smoothing	Tapping
Inlaying	Pointing	Spreading	Tying
Matching	Pressing	Stapling	Wrapping

Typical Occupations: Floor Layer; Carpet Layer; Roofer; Insulation Worker; Pipe Coverer; Siding Installer.

094 CAULKING

Sealing and filling holes, crevices, cracks, joints, seams, depressions, and other spaces with a material (other than solder) for such purposes as making object or structure airtight, waterproof, and weatherproof. Includes the blowing of loose insulation materials into open spaces, but not the laying of insulation material as a cover, which is included in Laying-Covering (092).

Blowing (loose insulating materials)	Hammering Puttying	Ramming Scraping	Smoothing
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Typical Occupations: Putty Spreader; Caulker; Hole Filler; Insulation Blower; Plywood-Panel Sealer; Barrel Liner.

095 PAVING

Covering surfaces with materials, such as asphalt, concrete, tar, oil, and gravel.

Compacting Filling Leveling	Oiling Patching Rolling	Scraping Smoothing Spreading	Tamping
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Typical Occupations: Paving-Machine Operator; Spreader Operator; Curbing-Machine Operator; Paving Supervisor; Sprayer Operator.

101 UPHOLSTERING

Covering, padding, trimming, or renovating upholstered furniture, mattresses, car seats, automobile, train, or aircraft interiors, and the like by any combination of Bolting-Screwing, Gluing, Nailing, Sewing, and Shearing-Shaving. Jobs involved with only one of these work fields are listed thereunder.

Draping Measuring Molding	Packing Padding Smoothing	Spreading Stretching Stuffing	Tacking Tufting Tying
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Typical Occupations: Automobile Upholsterer; Furniture Upholsterer; Upholstery Repairer; Upholsterer, Assembly Line.

102 STRUCTURAL FABRICATING-INSTALLING-REPAIRING

Fabricating, installing, and repairing structures and objects whose components are static and may require shaping to fit by any combination of the following work fields: Abrading (051), Bolting-Screwing (071), Boring (053), Brushing-Spraying (153), Caulking (094), Chipping (052), Fastening (062), Fitting-Folding (061), Flame Cutting-Arc Cutting-Beam Cutting (082), Gluing-Laminating (063), Immersing-Coating (151), Laying-Covering (092), Masoning (091), Milling-Turning-Planing (055), Molding (136), Nailing (072), Paving (095), Pressing-Forging (134), Riveting (073), Sawing (056), Sewing-Tailoring (171), Shearing-Shaving (054), Soldering-Brazing (083), and Welding (081).

Aligning Anchoring Blocking Up Bracing Cementing Clamping	Clinching Coupling Glazing Knocking Down Leveling Lining Up	Measuring Padding Plumbing Positioning Prying Rigging	Sinking Splicing Staying Truing
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Typical Occupations: Construction Inspector; Carpenter; Boat Builder and Repairer; Boilermaker; Musical-Instrument Maker; Cabinetmaker; Cooper; Aircraft Assembler; Structural-Steel Erector; Pipefitter; Plumber; Propmaker.

111 ELECTRICAL-ELECTRONIC FABRICATING-INSTALLING-REPAIRING

Fabricating, installing, and repairing objects that have electrical and electronic functioning elements by any combination of the following work fields: Abrading (051), Bolting-Screwing (071), Boring (053), Fitting-Folding (061), Nailing (072), Riveting (073), Soldering-Brazing (083), Welding (081), and Winding (163). Distinguish from Structural Fabricating-Installing-Repairing (102) and Mechanical Fabricating-Installing-Repairing (121).

Calibrating	Plugging In	Testing	Twisting
Connecting	Stringing	Threading	Wiring
Hooking Up	Switching	Turning	

Typical Occupations: Electrician; Instrument Mechanic; Appliance Assembler; Electronics Tester; Electrical-Equipment Installer; Electrical-Systems Installer and Repairer; Telephone-and-Telegraph Equipment Installer and Repairer.

121 MECHANICAL FABRICATING-INSTALLING-REPAIRING

Fabricating, installing, and repairing objects that have moving parts of mechanically functioning elements by any combination of the following work fields: Abrading (051), Bolting-Screwing (071), Boring (053), Brushing-Spraying (153), Chipping (052), Fastening (062), Fitting-Folding (061), Flame Cutting-Arc Cutting-Beam Cutting (082), Gluing-Laminating (063), Immersing-Coating (151), Milling-Turning-Planing (055), Nailing (072), Pressing-Forging (134), Riveting (073), Sawing (056), Sewing-Tailoring (171), Shearing-Shaving (054), Soldering-Brazing (083), and Welding (081).

Aligning	Calibrating
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Typical Occupations: Machinist; Tool-and-Die Maker; Automobile Mechanic; Air-Conditioning Mechanic; Gunsmith; Maintenance Mechanic; Watch Repairer.

131 MELTING

Changing materials from solid to liquid state (usually by heat) for such purposes as compounding with other materials, refining by separation (through accompanying chemical change), and making materials amenable to shaping and casting. Distinguish from Soldering-Brazing (083), and Welding (081), in which melting occurs incidental to joining parts together.

Agitating	Firing	Loading	Tapping
Charting	Fluxing	Pouring	Throwing
Drawing	Fueling	Shoveling	
Dumping	Heating	Skimming	
Filling	Kindling	Stirring	

Typical Occupations: Foundry Supervisor; Open-Hearth-Furnace Operator; Blast-Furnace Supervisor.

132 CASTING

Shaping materials by pouring, injecting, and pressing into a mold and permitting or causing to solidify. Distinguish from Die Sizing (135), in which shaping is effected by dies and rollers; Molding (136), in which shaping is dependent on worker; and Pressing-Forging (134), which involves application of force or sharp blows to accomplish shaping.

Blowing	Flooding	Placing (in mold)
Brushing	Inflating	Stretching
Filling	Kneading	Throwing (in mold)

Typical Occupations: Die-Casting-Machine Operator; Coremaker; Bowling-Ball Molder; Injection-Molding-Machine Tender.

133 HEAT CONDITIONING

Hardening, softening, and toughening materials by heating and cooling with or without accompanying chemical change. Materials may be subjected to heat alone to alter molecular structure of materials and induce special qualities, such as hardness, flexibility, and ductility; or material may be treated with heat aided by carbonizing materials and chemical baths to impart a hard "skin" to the material. Included also is the activity in which materials are heated to treat them for further processing (e.g., bringing metal bars to prescribed red-hot temperature).

Annealing	Freezing	Plunging
Bluing	Immersing	Quenching
Drawing	Packing	Refrigerating

Typical Occupations: Heat-Treat Supervisor; Annealer; Glass Bender; Rivet Heater.

134 PRESSING-FORGING

Shaping, severing, piercing, and forge-welding materials by a force pushed against or through materials, or by applying sharp blows (as in hammering). Distinguish from Casting (132), in which molds are used to shape material; Die Sizing (135), which utilizes dies and rollers in shaping; Surface Finishing (032), which is predominately fabric oriented; and Molding (136), which involves the cumulative addition of material to original mass (by worker) in accomplishing shaping of material.

Beating	Dimpling	Molding	Striking
Braking	Dishing	Pounding	Swaging
Clipping	Drawing	Rolling	Twisting
Coiling	Flaring	Shearing	
Compressing	Hitting	Spinning	
Crimping	Kneading	Stamping	

Typical Occupations: Blacksmith; Forge-Shop Supervisor; Punch-Press Operator; Hammersmith.

135 DIE SIZING

Shaping material by forcing it through dies, drawing it through dies, and reducing it between rollers. Distinguish from Casting (132), in which shaping is achieved by use of molds; Surface Finishing (032), which is fabric oriented; Molding (136), which involves a cumulative buildup (by worker) in shaping materials; and Pressing-Forging (134), in which force or sharp blows are applied.

Compressing	Pouring	Ramming	Squeezing
Extruding	Pressing	Rollforging	Stamping
Measuring	Pulling	Rolling	Straining

Typical Occupations: Chalk-Extruding-Machine Operator; Cold-Rolling Supervisor; Extrusion Supervisor.

136 MOLDING

Shaping material by cumulative addition of material (by worker) to build up original mass and pressing material into shape. Includes removing excess material to obtain finished product. Distinguish from Casting (132), in which shaping is primarily dependent on molds to shape material; Die Sizing (135), which utilizes dies or rollers to accomplish shaping; and Pressing-Forging (134), which involves applying a force or sharp blows to shape material.

Compacting	Laying	Rolling	Spreading
Forming	Moistening	Smearing	Stuffing
Jolting	Packing	Smoothing	Taping
Kneading	Padding	Softening	Vulcanizing

Typical Occupations: Concrete Sculptor; Cigarmaker; Candlemaker; Artificial-Plastic-Eye Maker; Vulcanizer.

141 BAKING-DRYING

Drying, solidifying, tenderizing, and otherwise subjecting materials to heat. Distinguish from Distilling (144), in which heating results in the refinement, concentration, and condensation of substances, gases, and vapors; and from Heat Conditioning (133), in which treatment of materials with heat induces special qualities, such as hardness, flexibility, and ductility.

Burning	Firing	Seasoning (lumber)
Curing	Fluffing	Smoking
Dehydrating	Roasting	Tumbling

Typical Occupations: Fish Smoker; Cocoa-Bean Roaster; Tobacco Curer; Veneer-Drier Supervisor; Kiln Firer.

142 CRUSHING-GRINDING

Reducing and separating materials into smaller particles, such as granules, grits, crumbs, chips, powder, paste, and pulp, by means of compressing, cutting, and smashing.

Beating	Dispersing	Milling (grain)	Rolling
Blowing	Kneading	Pulpifying	Tapping
Chopping	Mashing	Pulverizing	Tumbling

Typical Occupations: Miller Supervisor; Powdered-Sugar-Pulverizer Operator; Concrete-Patch-Plant Operator; Wood-Grinder Operator; Pulper.

143 MIXING

Combining and mingling liquid and solid materials to produce a single mass or compound.

Agitating	Dissolving	Scooping	Stirring
Blending	Homogenizing	Scraping	

Typical Occupations: Feed Blender; Paint Mixer; Fertilizer Mixer; Tobacco Blender; Clay-Preparation Supervisor.

144 DISTILLING

Refining and concentrating substances (following expulsion of gases and vapors) and recapturing and condensing gases and vapors driven off by heating liquids and solids in retorts, stills, and similar equipment.

Boiling Off	Compressing	Drawing Off	Melting
Breaking Down	Cooling	Evaporating	Percolating
Burning	Cracking	Firing	Refluxing
Charging	Dehydrogenating	Liquefying	Sweating (wax)

Typical Occupations: Fermentation Operator; Still Operator; Tomato-Paste Maker; Sugar Boiler.

145 SEPARATING

Separating substances and materials in mixtures from remainder of mixture components for purposes other than cleaning by means of filtering, sifting, straining, squeezing, centrifugal pressure, gravity, precipitation, and agitation.

Blowing	Drawing Off	Pressing	Sizing
Bolting (grain)	Gauging	Screening	Stirring
Draining	Heating	Shaking	Washing

Typical Occupations: Centrifugal Operator; Nut Sorter; Filter Tender; Brine-Tank-Separator Operator; Char-Filter Operator; Cocoa-Press Operator.

146 COOKING-FOOD PREPARING

Preparing food for human and animal consumption, by methods which may include those specific to other defined work fields. Distinguish from Butchering-Meat Cutting (034), which involves slaughtering domestic animals, poultry, and fish, and dressing and processing meats for marketing.

Basting	Flavoring	Pasteurizing	Seasoning
Boiling	Frying	Pickling	Spreading
Brewing	Heating	Rendering	Squeezing
Churning	Kneading	Roasting	
Curing	Measuring	Rolling	

Typical Occupations: Brewer; Chef; Cottage-Cheese Maker; Baker; Cook.

147 PROCESSING-COMPOUNDING

Processing materials other than food and photographs to attain desired results by any combination of the following work fields: Baking-Drying (141), Distilling (144), Heat Conditioning (133), Melting (131), Mixing (143), Saturating (152), and Separating (145). Distinguish from Cooking-Food Preparing (146), which involves food processing and from Developing-Printing (202), which involves reproducing records of data and designs by chemical means.

Amalgamating	Compounding	Oxidizing	Roasting
Boiling	Cooking	Percolating	Stirring
Carbonating	Heating	Polymerizing	Titration
Charging	Neutralizing	Precipitating	

Typical Occupations: Chemical-Laboratory Technician; Pharmacist; Refinery Operator.

151 IMMERSING-COATING

Covering the surface of objects with a protective and decorative coating of liquid materials which dry and set by plunging, dipping, and otherwise submerging objects in the material. Distinguish from Brushing-Spraying (153), which does not involve the immersing method of coating; from Electroplating (154), in which immersing is a step in the electrolytic treatment of objects; and from Saturating (152), which involves impregnating materials rather than covering and coating objects.

Draining	Rolling	Suspending
Dumping	Squeezing	Wiping

Typical Occupations: Coating-Machine Operator; Dipper; Impregnating-Tank Operator; Roofing-Machine Operator; Wire-Coating Supervisor.

152 SATURATING

Impregnating materials with other substances (generally in solution) by dyeing, starching, shrinking, preserving, and softening to impart particular qualities. Distinguish from Brushing-Spraying (153), which involves coating without immersion; Electroplating (154), which involves electrolytic treatment of objects; and Immersing-Coating (151), which involves covering and coating materials.

Bleaching	Liming	Spraying	Stirring
Boiling	Moistening	Spreading	Submerging
Immersing	Rinsing	Steaming	

Typical Occupations: Rug Dyer; Shoe Dyer; Bleach-Range Operator; Cloth-Mercerizer Operator; Hide-and-Skin Colorer.

153 BRUSHING-SPRAYING

Covering the surfaces of objects with protective and decorative coating, such as waxes, paints, lacquers, and other compounds that dry and set. Equipment and tools used generally include brushes, rollers, and spray guns. Distinguish from Immersing-Coating (151), which involves submerging objects in solutions, and from Artistic Painting-Drawing (262), which involves producing designs or lettering.

Burning Off	Matching	Rubbing	Staining
Filling	Mixing	Scraping	Varnishing
Masking	Rolling	Spreading	Whitewashing

Typical Occupations: Jewelry Coater; Electrostatic Painter; House Painter; Spray Painter; Waterproofing Supervisor.

154 ELECTROPLATING

Covering the surface of objects with a coating of material by electrolysis. Distinguish from Immersing-Coating (151), in which coating is not accomplished by electrical action, although immersing the objects is a step in the process.

Brushing	Dusting	Immersing
Dipping	Electrodepositing	Rolling

Typical Occupations: Electrogalvanizing-Machine Operator; Production Plater; Optical-Glass Silverer; Zinc-Plating-Machine Operator.

161 COMBING-NAPPING

Cleaning, disentangling, and straightening material by forcing it through prongs of a comb and raising and producing a nap on materials. Includes such mechanical action as directing jets of air against yarn to change its physical structure and increase its bulk.

Fluffing	Shredding	Texturing
Pulling	Splitting	

Typical Occupations: Carding Supervisor; Comber Tender; Card Tender; Napper Tender; Mannequin-Wig Maker.

162 SPINNING

Combining, drawing out, and twisting material into strand-like form. Distinguish from Die-Sizing (135), in which material (usually metal and plastic) may be extruded and drawn into strand-like form, but without twisting.

Splicing	Threading	Tying
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Typical Occupations: Drawing-Frame Tender; Winding-and-Twisting-Department Supervisor; Bow-String Maker; Frame Spinner.

163 WINDING

Coiling material about an object to form a spool or ball of the material or to cover the object.

Bunching	Lacing	Splitting	Threading
Coning	Reeling	Spooling	Tying

Typical Occupations: Yarn Winder; Cloth-Winding Supervisor; Wire-Winding-Machine Tender; Coil Winder; Mainspring Winder and Oiler.

164 WEAVING

Interlacing strands of yarns, wires, and other strand-like materials with other yarns, wires, and other strand-like materials to form textiles, wire, and similar products. Distinguish from Knitting (165), in which single strands are looped, and Tufting (166), in which interlacing is not present.

Braiding
Doffing

Drawing
Knotting

Picking
Tying

Typical Occupations: Endless-Belt-Weaving Supervisor; Carpet Weaver; Weaving Supervisor.

165 KNITTING

Interlacing strands of material in a series of connected loops to form textiles, wire, and similar products. Distinguish from Weaving (164), in which multiple strands are interlaced, and Tufting (166), in which no interlacing occurs.

Creeling
Crocheting

Hooking
Knotting

Looping
Stringing

Threading
Tying

Typical Occupations: Knitting-Machine Operator; Seamless-Hosiery Knitter; Knitting Supervisor; Trawl-Net Maker.

166 TUFTING

Inserting tufts and loops of yarn through material, by hand and machine, without interlacing or interlocking yarn. Distinguish from Weaving (164), which involves interlacing of strands; from Knitting (165), in which strands are looped; and from Sewing-Tailoring (171), which involves fastening materials principally with needle and thread.

Clustering

Drawing Through

Hooking

Typical Occupations: Tufting Supervisor; Rug-Frame Mounter; Tuft-Machine Operator; Rug Hooker; Burler.

171 SEWING-TAILORING

Joining, mending, and fastening materials with needle and thread by hand and machine. Includes simulated sewing by ultrasonic machines.

Basting
Binding
Darning
Embroidering

Gathering
Hemming
Hemstitching
Measuring

Padding
Patching
Puckering
Ripping

Serging
Stretching
Stuffing
Tucking

Typical Occupations: Luggage Repairer; Book-Sewing-Machine Operator; Quilting-Machine Operator; Upholstery Sewer; Ultrasonic-Seaming-Machine Operator; Sewing-Machine Operator.

182 ETCHING

Wearing away the surface of materials by the corrosive action of chemicals on exposed parts of material.

Corroding
Desensitizing

Dusting
Photoengraving

Scoring
Scratching

Scribing

Typical Occupations: Etcher; Silk-Screen Etcher; Glass Etcher.

183 ENGRAVING

Inscribing the surface of material by incising.

Abrading	Chasing	Impressing	Shading
Carving	Graving	Intensifying	

Typical Occupations: Engraving Supervisor; Engraver; Pantographer.

191 PRINTING

Reproducing records of data and designs by transfer of ink and dye to surface of materials by use of type, plates, dies, silkscreens, and stencils. Includes typesetting, compositing, and reproducing printed matter by use of computerized typesetting and related printing equipment.

Coating	Embossing	Moistening	Stenciling
Composing (raised printing)	Immersing	Registering	
Dampening	Inking	Setting (type)	
	Measuring	Stamping	

Typical Occupations: Addressing-Machine Operator; Typesetting Supervisor; Silk-Screen Printer; Compositor; Web-Press Operator; Letter-Press Operator; Offset-Press Operator.

192 IMPRINTING

Indenting and perforating the surfaces of products to reproduce records of data by mechanical means. Distinguish from Pressing-Forging (134), which involves change of shape and form of products rather than indentation of surfaces.

Brushing	Heating	Pressing	Stamping
Embossing	Leveling	Spreading	

Typical Occupations: Embosser; Name-Plate Stamper; Leather Stamper.

201 PHOTOGRAPHING

Producing records (images) of things, people, places, and data by chemical changes on a sensitized surface (as a film) and by electronic means induced by light and similar waves.

Exposing	Framing	Posing
Focusing	Lighting	Zooming

Typical Occupations: Motion-Picture Photographer; Radiographer; Photocopying-Machine Operator; Audiovisual-Production Specialist; Lithographic-Plate Maker.

202 DEVELOPING-PRINTING

Reproducing records of data and designs by chemical means.

Coating	Enlarging	Opaquing	Soaking
Cropping	Immersing	Projecting	Spotting
Drying	Masking	Rubbing	Whirling

Typical Occupations: Film-Processing Supervisor; Film Developer; Film-Laboratory Technician; Developer; Film Printer.

211 APPRAISING

Evaluating and estimating the quality and value of data and things based on knowledge and judgment acquired through experience and training and by conducting performance tests. Includes interpretation of findings that may influence variations in machinery setups, formula modifications, and product processing. Whenever the techniques of Appraising require a technical background in another work field, assign that work field also. Distinguish from Inspecting-Measuring-Testing (212), which primarily involves comparison with predetermined standards.

Aligning	Feeling	Meshing	Timing
Breaking	Gauging	Sieving	Trying Out
Calibrating	Investigating	Smelling	Turning
Classifying	Magnetizing	Stretching	Twisting
Diluting	Magnifying	Tasting	Typing (blood)
Dissolving	Marking	Tearing	Validating
Driving	Measuring	Testing	Weighing

Typical Occupations: Metallurgical-and-Quality-Control-Testing Supervisor; Medical-Laboratory Technician; Real-Estate Appraiser; Fire Inspector.

212 INSPECTING-MEASURING-TESTING

Examining materials and products to verify conformance to predetermined standards and characteristics, such as size, weight, composition, and color. Distinguish from Appraising (211), which involves evaluating things and data based primarily on judgment and knowledge rather than on comparison with readily verifiable standards.

Bending	Feeling	Picking	Twisting
Breaking	Gauging	Shaking	Verifying
Comparing	Grading	Stretching	Weighing
Culling	Marking	Tearing	
Detecting	Matching	Turning	

Typical Occupations: Shipping-and-Receiving Weigher; Spring Tester; Bowling Ball Weigher and Packer; Production Weigher; Quality Control Inspector.

221 STOCK CHECKING

Receiving, storing, issuing, requisitioning, and accounting for stores of materials and materials in use; involves the physical handling of the materials. Representative job activities covered by this work field include processing records and keeping materials on hand in balance with operational needs; assigning locations and space to items according to size, quantity, and type; verifying quantity, identification, condition, and value of items and the physical handling of items, such as binning, picking, stacking, and counting; receiving, checking, and delivering items; verifying completeness of incoming and outgoing shipments; preparing and otherwise committing stocks for shipment; keeping and conducting inventory of merchandise, materials, stocks, and supplies; filling orders and requisitions; and issuing tools, equipment, and materials.

Cataloging	Posting	Routing	Tagging
Marking	Pricing	Securing	Transcribing
Matching	Punching	Selecting	Tying
Measuring	Replacing	Shelving	
Ordering	Replenishing	Sorting	

Typical Occupations: Stock Clerk; Distribution-Warehouse Manager; Librarian; Mail Clerk; Parts Clerk; Order Filler; Shipping-and-Receiving Clerk.

231 VERBAL RECORDING-RECORD KEEPING

Preparing, keeping, sorting, and distributing records and communications, primarily verbal in character but including symbol devices, to communicate and systematize information and data by methods not specifically defined elsewhere, as in Developing-Printing (202), Imprinting (192), Photographing (201), Printing (191), and Stock Checking (221). Distinguish from Numerical Recording-Record Keeping (232), where records are also involved but the primary activity is computation.

Addressing	Listing	Reading	Taking Dictation
Checking	Locating	Routing	Taking Minutes
Collating	Mailing	Searching	Typing
Counting	Marking	Segregating	Verifying
Editing	Posting	Selecting	Writing
Filing	Punching	Stamping	

Typical Occupations: Secretary; Stenographer; File Clerk; Typist.

232 NUMERICAL RECORDING-RECORD KEEPING

Systematizing information on transactions and activities into accounts and numerical records through the application of arithmetic, bookkeeping, statistics, and other quantitative procedures (including paying and receiving money). Distinguish from Verbal Recording-Record Keeping (231), in which the primary activity is the keeping of records without computation.

Adding	Disbursing	Making Change	Stamping
Auditing	Dividing	Matching	Subtracting
Balancing	Endorsing	Multiplying	Tabulating
Cashiering	Entering	Posting	Totaling
Checking	Grouping	Prorating	Typing
Coding	Itemizing	Recapitulating	Verifying
Counting	Listing	Sorting	Writing

Typical Occupations: Actuary; Accountant; Bookkeeper; Teller; Cashier; Posting Clerk.

233 DATA PROCESSING

Planning, developing, testing, evaluating, and executing a systematic sequence of activities or operations to process alphabetic, numeric, and symbolic data or to solve problems by means of computer systems. This work field applies only to jobs in which processing data and solving related problems are the purpose of the job, rather than the means by which the worker accomplishes a task. Distinguish from Verbal Recording-Record Keeping (231) which involves the keeping of records without computation; Numerical Recording-Record Keeping (232) which involves the keeping of records with computation; and from Printing (191) in which computerized equipment may be used in reproducing printed matter. Computer hardware engineering is included in Work Field 244-Engineering. Data entry is included in Work Field 231-Verbal Recording-Record Keeping.

Analyzing	Editing	Modifying	Scheduling
Correcting	Entering	Monitoring	Storing
Deleting	Explaining	Programming	Verifying
Documenting	Interpreting	Retrieving	

Typical Occupations: Systems Analyst; Computer Programmer; Computer Operator; User Support Specialist; Software Engineer; Data Communications Technician.

241 LAYING OUT

Plotting reference points or tracing working diagrams onto surfaces of materials as guides in the working and processing of the materials. Distinguish from Styling (264), which includes spacing and positioning of objects and parts, printed material, and artwork that is sometimes termed "layout" work.

Blocking	Draping	Pinning	Stamping
Chalking	Inscribing	Scoring	Tapping
Coating	Outlining	Scratching	Transferring
Dotting	Perforating	Scribing	

Typical Occupations: Tool-and-Die Maker; Patternmaker; Model Maker; Template Maker.

242 DRAFTING

Drawing plans, diagrams, graphs, tables, charts, and maps of things, places, and data to be used by others. Drawings are usually to scale and reflect aspects of the subject delineated, such as dimensions and weight.

Detailing	Lettering	Plotting	Tracing
Diagramming	Measuring	Sketching	

Typical Occupations: Drafter; Technical Illustrator; Map Editor.

243 SURVEYING

Taking linear and angular measurements to ascertain the contour, dimensions, and position of the earth's surface. Included are such survey specialties as cartography, construction, property, geodesy, hydrography, topography, mining, photogrammetry, land development, and mapping.

Calculating	Marking	Pacing	Staking
Locating	Measuring	Plotting	Taping

Typical Occupations: Surveyor; Geodesist; Navigator.

244 ENGINEERING

Planning and designing machinery, structures, and systems to develop and utilize the properties of matter, work capacities of people, and sources of power, on the basis of known facts, principles, and theories. Included are such engineering disciplines as ceramic, electrical, electronic, civil, mechanical, industrial, and chemical.

Calculating	Investigating	Testing
Formulating	Scheduling	Writing

Typical Occupations: Architect; Aerodynamicist; Mechanical Engineer; Chemical Engineer; Metallurgist; Industrial Engineer.

251 RESEARCHING

Inquiring into fundamental knowledge areas, such as social, physical, and allied sciences, industry, and commerce, for the purpose of discovering facts and making interpretations, and revising and verifying recognized conclusions, theories, laws, and procedures in the light of newly discovered facts.

Additionally, this work field includes formulating and testing hypotheses on the basis of information obtained by using specialized apparatus and techniques, by making expeditions, and by reading or observing. When expertise in another work field is required, assign that work field also.

Analyzing	Dissecting	Inoculating	Reporting
Classifying	Documenting	Isolating	Synthesizing
Collecting	Examining	Locating	Writing
Defining	Experimenting	Measuring	

Typical Occupations: Research Engineer; Operations-Research Analyst; Physicist; Geologist; Botanist; Curator; Consultant.

261 WRITING

Reporting, editing, promoting, translating, creating, and interpreting ideas in written form. Excludes translation of spoken foreign passages and sign language of the deaf which is included in Information Giving (282).

Adapting	Depicting	Proofreading	Verifying
Analyzing	Describing	Reading	
Criticizing	Outlining	Summarizing	

Typical Occupations: Copywriter; Critic; Playwright; Newscaster; Reporter; Editor; Proofreader.

262 ARTISTIC PAINTING-DRAWING

Creating and reproducing designs of lettering and depicting ideas pictorially to achieve functional and aesthetic effects, using color media (oil paints, tempera, water colors, etc.) and devices, such as pencils, crayons, brushes, and spray guns. Distinguish from Brushing-Spraying (153) and Immersing-Coating (151), which involve covering objects but without producing designs or lettering.

Blanking Out	Inking	Spotting Out	Tracing
Blocking Out	Rubbing	Spraying	Wiping
Coloring	Shading	Tinting	
Copying	Sketching	Touching Up	

Typical Occupations: Painting Restorer; Cartoonist; Illustrator; Painter; Music Copyist.

263 COMPOSING-CHOREOGRAPHING

Originating and interpreting ideas in musical form. Includes creating dynamic body movements to express rhythmically various music forms.

Arranging	Orchestrating	Translating	Writing
Harmonizing	Scoring	Transposing	

Typical Occupations: Choreographer; Composer; Orchestrator; Arranger.

264 STYLING

Designing and arranging objects, products, and materials for functional and aesthetic purposes. Frequently involves preparing work sketches and drawings, making models and prototypes, and producing sample items.

Adapting	Displaying	Molding	Tracing
Cutting	Laying Out	Placing	
Decorating	Modifying	Sketching	

Typical Occupations: Landscape Architect; Art Director; Display Designer; Hair Stylist.

271 INVESTIGATING

Obtaining and evaluating data about persons, places, and incidents for purposes such as solving criminal cases; settling claims; estimating credit risks; determining the qualifications, integrity, and loyalty of people; assessing eligibility for social-service-assistance programs; and ensuring compliance with laws and regulations. Distinguish from Researching (251), which involves inquiry and examination into areas of fundamental knowledge.

Advising	Inspecting	Questioning
Enforcing	Interrogating	Scanning
Inquiring	Interviewing	Searching

Typical Occupations: Market-Research Analyst; Coroner; Caseworker; Claims Examiner; Detective.

272 LITIGATING

Carrying out legal procedures, such as prosecuting and defending by pleading case, presenting evidence, debating in court, drawing up legal papers, and interpreting statutes.

Adjudicating	Arbitrating	Probating	Trying (cases)
Advising (clients)	Cross-Examining	Questioning	

Typical Occupations: Lawyer; Judge; Patent Agent.

281 SYSTEM COMMUNICATING

Effecting the transmission of information through electrical and electronic systems. Distinguish from Information Giving (282), which involves direct contact with the public in receiving and obtaining information to be transmitted, and from Data Processing (233), which involves the establishment and testing of the means of the transmission of information rather than the continuous transmission of information.

Announcing	Entering	Retrieving	Transmitting
Calling	Receiving	Ringling	Tuning
Dispatching	Relaying	Sending	

Typical Occupations: Air-Traffic Coordinator; Recording Engineer; Telephone Operator; Dispatcher; Telegrapher; Motion-Picture Projectionist.

282 INFORMATION GIVING

Providing information to people regarding places, events, programs, and procedures. Distinguish from the giving of information, which is involved in accomplishing such objectives as those of Accommodating (291), Merchandising-Sales (292), Teaching (296), and System Communicating (281). Includes giving information over the phone in response to an inquiry.

Advising	Explaining	Lecturing	Receiving
Answering	Informing	Reading	Speaking

Typical Occupations: Guide; Home Economist; Announcer; Information Clerk; Receptionist.

291 ACCOMMODATING

Providing specialized personal convenience and physical services to people and animals. Distinguish from services provided in Health Caring-Medical (294).

Attending	Exercising	Manicuring	Tinting
Bathing	Feeding	Massaging	Ushering
Currying	Greeting	Paging	Waiting (on)
Cutting (hair)	Grooming	Posting	Watering (animals)
Dressing	Introducing	Running Errands	Waving (hair)
Escorting	Making Arrangements	Shampooing	

Typical Occupations: Undertaker; Waitress; Cosmetologist; Barber; Attendant; Animal Caretaker.

292 MERCHANDISING-SALES

Buying, selling, renting, and demonstrating materials, products, and services, usually in retail and wholesale establishments. Includes soliciting contributions of money and time for charitable and other causes. Distinguish from Information Giving (282).

Collecting	Fitting	Peddling	Supplying
Describing	Interviewing	Promoting	Taking Tickets
Displaying	Leasing	Purchasing	
Distributing	Negotiating	Showing	

Typical Occupations: Sales Engineer; Sales Manager; Sales Agent; Auctioneer; Dispensing Optician; Salesperson.

293 PROTECTING

Protecting human, animal, and plant life and property against loss from fire, pests, and other natural hazards, and from negligence, criminal acts, and unlawful practices. Includes work situations, such as maintaining peace and order, directing traffic, patrolling establishments and areas, and apprehending lawbreakers; extinguishing fires; and exterminating pests.

Burning	Demolishing	Firefighting	Policing
Cautioning	Draining	Fumigating	Spraying
Conserving	Dusting	Guarding	

Typical Occupations: Park Ranger; Security Guard; Firefighter; Police Officer; Exterminator; Dog Catcher; Ski Patroller.

294 HEALTH CARING-MEDICAL

Treating people and animals with physical and mental problems. Distinguish from Accommodating (291) and Advising-Counseling (298).

Bandaging	Exercising	Massaging	Taking Pulse
Bathing	Injecting	Monitoring	Treating
Diagnosing	Inoculating	Prescribing	
Disinfecting	Interviewing	Quarantining	
Examining	Investigating	Rubbing	

Typical Occupations: Anesthesiologist; General Practitioner; Psychiatrist; Dentist; Oral Surgeon; Nurse; Physical Therapist; Podiatrist; Veterinarian.

295 ADMINISTERING

Managing and directing people, organizations, programs, and activities above the first-line supervision level.

Analyzing	Coordinating	Negotiating
Authorizing	Formulating	Planning
Contracting	Hiring	Scheduling

Typical Occupations: Principal; Dean; Director; Manager; Superintendent.

296 TEACHING

Instructing and training people and animals. Distinguish from Information Giving (282).

Demonstrating	Grading	Planning	Testing
Directing	Lecturing	Reviewing	
Examining	Observing	Supervising	

Typical Occupations: Faculty Member; Instructor; Teacher; Dramatic Coach; Animal Trainer.

297 ENTERTAINING

Exhibiting specialized artistic, physical, or mental skills to amuse or divert audiences.

Acting	Demonstrating	Miming	Singing
Balancing	Impersonating	Performing	Staging
Conducting	Juggling	Portraying	
Dancing	Lecturing	Rehearsing	

Typical Occupations: Actor; Dancer; Musician; Orchestra Conductor; Automobile Racer; Professional Athlete; Clown.

298 ADVISING-COUNSELING

Effecting the adjustment of people with financial, vocational, spiritual, educational, and other problems according to established procedures. Distinguish from Accommodating (291), Health Caring-Medical (294), and Litigating (272).

Arbitrating
Authorizing
Consulting
Evaluating

Explaining
Interviewing
Investigating
Monitoring

Planning
Reporting
Researching
Reviewing

Scheduling
Suggesting
Testing
Visiting

Typical Occupations:

Counselor; Clergy Member; Financial Planner; Caseworker.