

The Revised Handbook for Analyzing Jobs



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CHAPTER 7

GENERAL EDUCATIONAL DEVELOPMENT

General Educational Development (GED), a component of Worker Characteristics, embraces those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions, and (b) acquisition of "tool" knowledge such as language and mathematical skills. This is education of a general nature which does not have a recognized, fairly specific occupational objective. Ordinarily, such education is obtained in elementary school, high school, or college. However, it may be obtained from experience and self-study.

DIVISIONS OF GED SCALE

The GED Scale is composed of three divisions: Reasoning Development, Mathematical Development, and Language Development. Each should be considered and rated independently of the others in evaluating the levels required for a job. In theory Mathematics and Language are components of Reasoning; therefore, Reasoning should have at least as high a rating as the higher one assigned for Mathematics or Language.

RATIONALE FOR GED SCALE DEFINITIONS

The description of the various levels of language and mathematical development are based on the curriculum taught in schools throughout the United States. An analysis of mathematics courses in school curriculums reveals distinct levels of progression in the primary and secondary grades and in college. These levels of progression facilitated the selection and assignment of six levels of GED for the mathematical development scale.

However, though language courses follow a similar pattern of progression in primary and secondary school, particularly in learning and applying the principles of grammar, this pattern changes at the college level. The diversity of language courses offered at the college level precludes the establishment of distinct levels of language progression for these four years. Consequently, language development is limited to five defined levels of GED.

A sample of job-worker situations for each GED level has been placed on a scale. These situation descriptions do not include all work devices that may be used by the worker. However, they have been written to make the GED level of each as explicit as possible. These situations have been written to make their level value as explicit as possible. Since the discrimination by level is dependent on a verbal expression, it is not precise. Familiarity with the total range of illustrative situations should contribute, however, to the use and application of the scales.

Scale of General Education Development (GED)

LEVEL	REASONING DEVELOPMENT	MATHEMATICAL DEVELOPMENT	LANGUAGE DEVELOPMENT
6	Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Apprehend the most abstruse classes of concepts.	<p>Advanced calculus: Work with limits, continuity, real number systems, mean value theorems, and implicit function theorems.</p> <p>Modern Algebra: Apply fundamental concepts of theories of groups, rings, and fields. Work with differential equations, linear algebra, infinite series, advanced operations methods, and functions of real and complex variables.</p> <p>Statistics: Work with mathematical statistics, mathematical probability and applications, experimental design, statistical inference, and econometrics.</p>	Same as Level 5.
5	Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions in mathematical or diagrammatic form. Deal with several abstract and concrete variables.	<p>Algebra: Work with exponents and logarithms, linear equations, quadratic equations, mathematical induction and binomial theorem, and permutations.</p> <p>Calculus: Apply concepts of analytic geometry, differentiations, and integration of algebraic functions with applications.</p> <p>Statistics: Apply mathematical operations to frequency distributions, reliability and validity of tests, normal curve, analysis of variance, correlation techniques, chi-square application and sampling theory, and factor analysis.</p>	<p>Reading: Read literature, book and play reviews, scientific and technical journals, abstracts, financial reports, and legal documents.</p> <p>Writing: Write novels, plays, editorials, journals, speeches, manuals, critiques, poetry, and songs.</p> <p>Speaking: Coversant in the theory, principles, and methods of effective and persuasive speaking, voice and diction, phonetics, and discussion and debate.</p>
4	Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form. (Examples of rational systems include: bookkeeping, internal combustion engines, electric wiring systems, house building, farm management, and navigation.)	<p>Algebra: Deal with system of real numbers; linear, quadratic, rational, exponential, logarithmic, angle and circular functions, and inverse functions; related algebraic solution of equations and inequalities; limits and continuity; and probability and statistical inference.</p> <p>Geometry: Deductive axiomatic geometry, plane and solid, and rectangular coordinates.</p> <p>Shop Math: Practical application of fractions, percentages, ratio and proportion, measurement, logarithms, practical algebra, geometric construction, and essentials of trigonometry.</p>	<p>Reading: Read novels, poems, newspapers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopedias.</p> <p>Writing: Prepare business letters, expositions, summaries, and reports, using prescribed format and conforming to all rules of punctuation, grammar, diction, and style.</p> <p>Speaking: Participate in panel discussions, dramatizations, and debates. Speak extemporaneously on a variety of subjects.</p>

Scale of General Education Development (GED)—Continued

LEVEL	REASONING DEVELOPMENT	MATHEMATICAL DEVELOPMENT	LANGUAGE DEVELOPMENT
3	Apply commonsense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	<p>Compute discount, interest, profit and loss; commission, markup, and selling price; ratio and proportion; and percentage. Calculate surfaces, volumes, weights, and measures.</p> <p>Algebra: Calculate variables and formulas; monomials and polynomials; ratio and proportion variables; and square roots and radicals.</p> <p>Geometry: Calculate plane and solid figures, circumference, area, and volume. Understand kinds of angles and properties of pairs of angles.</p>	<p>Reading: Read a variety of novels, magazines, atlases, and encyclopedias. Read safety rules, instructions in the use and maintenance of shop tools and equipment, and methods and procedures in mechanical drawing and layout work.</p> <p>Writing: Write reports and essays with proper format, punctuation, spelling, and grammar, using all parts of speech.</p> <p>Speaking: Speak before an audience with poise, voice control, and confidence, using correct English and well-modulated voice.</p>
2	Apply commonsense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.	<p>Add, subtract, multiply, and divide all units of measure. Perform the four operations with like common and decimal fractions. Compute ratio, rate, and percent. Draw and interpret bar graphs. Perform arithmetic operations involving all American monetary units.</p>	<p>Reading: Passive vocabulary of 5,000-6,000 words. Read at rate of 190-215 words per minute. Read adventure stories and comic books, looking up unfamiliar words in dictionary for meaning, spelling, and pronunciation. Read instructions for assembling model cars and airplanes.</p> <p>Writing: Write compound and complex sentences, using cursive style, proper end punctuation, and employing adjectives and adverbs.</p> <p>Speaking: Speak clearly and distinctly with appropriate pauses and emphasis, correct pronunciation, variations in word order, using present, perfect, and future tenses.</p>
1	Apply commonsense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations encountered on the job.	<p>Add and subtract two-digit numbers.</p> <p>Multiply and divide 10's and 100's by 2, 3, 4, 5. Perform the four basic arithmetic operations with coins as part of a dollar. Perform operations with units such as cup, pint, and quart; inch, foot, and yard; and ounce and pound.</p>	<p>Reading: Recognize meaning of 2,500 (two- or three-syllable) words. Read at rate of 95-120 words per minute. Compare similarities and differences between words and between series of numbers.</p> <p>Writing: Print simple sentences containing subject, verb, and object, and series of numbers, names, and addresses.</p> <p>Speaking: Speak simple sentences, using normal word order, and present and past tenses.</p>

DEFINITIONS AND EXAMPLES OF GED LEVELS

REASONING DEVELOPMENT

Level 1

Apply commonsense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations encountered on the job.

- R-1:1 Mark size, lot number, contents, or other identifying information or symbols on containers or directly on articles by placing stencil on object and rubbing ink or paint brush across open lettering.
- R-1:2 Covers drycleaned clothing and household articles with plastic bags, and sorts articles for route delivery. Hangs drycleaned articles on rail according to route number or color of drycleaning ticket.
- R-1:3 Scans rags for hardware such as buttons and snaps, and holds rags against rotating blade that cuts hardware from rags and cuts rags into specified size. Sorts rags into bins according to color and fabric.
- R-1:4 Tends bandsaw that cuts wooden stock for toys and games. Stacks number of pieces of stock on cutting table against preset ripping fence. Pushes cutting table against saw until stock is severed. Drops cut pieces into tote box.
- R-1:5 Feeds eggs into machine that removes earth, straw, and other residue from egg surface prior to shipment. Places eggs in holder that carries them into machine where rotating brushes or water sprays remove residue.
- R-1:6 Removes cleaned eggs from discharge trough and packs them in cases for shipment.

Level 2

Apply commonsense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.

- R-2:1 Guards street crossing during school hours when children are going to and from school. Directs actions of children and traffic at street intersections to ensure safe crossing. Records license numbers of vehicles disregarding traffic signals and reports them to police.
- R-2:2 Delivers messages, documents, packages, and other items to offices or departments within establishments or to other business concerns by walking, using bicycle or motor cycle, or riding public conveyances.
- R-2:3 Screws watch balance and balance bridge assembly to pillar plate. Places pillar plate in holding fixture and positions balance and bridge assembly on plate, securing it with screws. Tests balance for vertical play by gently moving it up and down with tweezers, determining from experience if shake is within acceptable limits. Touches oil-filled hypodermic needle to jewel to oil lower balance jewel prior to assembling. Observes minute parts with aid of loupe and handles parts with tweezers.
- R-2:4 Assists customer to launder or dryclean clothes, using self-service equipment. Gives instructions to customer in clothes preparations, such as weighing, sorting, fog-spraying spots, and removing perishable buttons. Assigns machine and points out posted instructions regarding equipment operation.

Level 3

Apply commonsense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.

- R-3:1 Operates cord or cordless switchboard to provide answering service for clients. Greets caller and announces name or phone number of client. Records and delivers messages, furnishes information, accepts orders, and relays calls. Places telephone calls at request of client or to locate client in emergencies. Files messages.
- R-3:2 Requisitions transportation from motor, railroad, and airline companies to ship plant products. Reads shipping orders to determine quantity and type of transportation needed. Contacts company to make arrangements and to issue instructions for loading products. Annotates shipping orders to inform shipping department of loading locations and time of arrival of transportation.
- R-3:3 Installs and adjusts television receivers and antennas, using handtools. Selects antenna according to type of set and location of transmitting station. Secures antenna in place with bracket and guy wire, observing insurance codes and local ordinances to protect installation from lightning and other hazards. Tunes receiver on all channels and adjusts screws to obtain desired density, linearity, focus, and size of picture.
- R-3:4 Sets up and adjusts compression, injection, or transfer machines used to mold plastic materials to specified shape. Adjusts stroke of ram, using handtools. Connects steam, oil, or water lines to mold or regulates controls to regulate mold temperature. Sets machine controls to regulate forming pressure of machine and curing time of plastic in mold.

Level 4

Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.

- R-4:1 Plans layout and installs and repairs wiring, electrical fixtures, apparatus, and control equipment. Plans new or modified installations according to specifications and electrical code. Prepares sketches showing locations of all wiring and equipment or follows diagrams or blueprints prepared by others. Tests continuity of circuit to ensure electrical compatibility and safety of all components, using standard instruments such as ohmmeter, battery, and oscilloscope.
- R-4:2 Inspects internal combustion engine for conformance to blueprints and specifications, using measuring instruments and handtools. Reviews test data to locate assemblies and parts not functioning according to specifications. Measures dimensions of disassembled parts and assemblies, such as pistons, valves, bearings, and injectors, using scale, micrometers, special tools, and gauging setups. Compares measurements against specifications to locate faulty parts.
- R-4:3 Draws and letters charts, schedules, and graphs to illustrate specified data, such as wage trends, absenteeism, labor turnover, and employment needs, using drafting instruments, such as ruling and lettering pens, T-squares, and straightedge or using drafting software and computer terminal.
- R-4:4 Schedules appointments, gives information to callers, takes dictation, and relieves officials of minor administrative and business details. Reads and routes incoming mail. Composes and types routine correspondence. Greets visitors, ascertains nature of business, and conducts visitors to appropriate person.
- R-4:5 Cares for patients and children in private homes, hospitals, sanitariums, and similar institutions. Takes and records temperature, pulse, and respiration rate. Gives standard medications as directed by physician or nurse. Sterilizes equipment and supplies, using germicides, sterilizer, or autoclave. Prepares food trays, feeds patients, and records food and liquid intake and output.

Level 5

Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions in mathematical or diagrammatic form. Deal with several abstract and concrete variables.

- R-5:1 Interviews persons with problems, such as personal and family maladjustment, lack of finances, unemployment, and physical and mental impairment, to determine nature and degree of problems. Obtains and evaluates patient data, such as physical, psychological, and social factors. Counsels patients individually or in groups and assists them to plan for solution of problems.
- R-5:2 Studies clerical and statistical methods in commercial or industrial establishments to develop improved and standardized procedures. Consults supervisors and clerical workers to ascertain functions of offices or sections, methods used, and personnel requirements. Prepares reports on procedures and tasks of individual workers.
- R-5:3 Interviews property holders and adjusts damage claims resulting from activities connected with prospecting, drilling, and production of oil and gas, and laying of pipelines on private property. Examines property titles to determine their validity and acts as company agent in transactions with property owners. Investigates and assesses damage to crops, fences, and other properties and negotiates claim settlements with property owners. Collects and prepares evidence to support contested damage in court.
- R-5:4 Studies traffic conditions on urban or rural arteries from fixed position, vehicle, or helicopter to detect unsafe or congested conditions and to observe locations of alternative routes. Evaluates statistical and physical data supplied by engineering department regarding such considerations as vehicle count per mile, load capacity of pavement, feasibility of widening pavement, and projected traffic load in future.
- R-5:5 Prepares and conducts inservice training for company personnel. Evaluates training needs in order to develop educational materials for improving performance standards. Performs research relating to course preparation and presentation. Compiles data for use in writing manuals, handbooks, and other training aids. Develops teaching outlines and lesson plans, determines content and duration of courses, and selects appropriate instructional procedures based on analysis of training requirements for company personnel.
- R-5:6 Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution. Administers prescribed medications and treatments in accordance with approved techniques. Prepares equipment, and aids physician during treatments and examinations of patients. Observes, records, and reports to supervisor or physician patients' conditions, reactions to drugs, treatments, and significant incidents.

Level 6

Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Comprehend the most abstruse classes of concepts.

- R-6:1 Designs and conducts experiments to study problems in human and animal behavior. Formulates hypotheses and experimental designs to investigate problems of growth, intelligence, learning, personality, and sensory processes. Selects, controls, and modifies variables in laboratory experiments with humans and animals. Analyzes data and evaluates its significance in relation to original hypotheses.
- R-6:2 Reconstructs records of extinct cultures, especially preliterate cultures. Studies, classifies, and interprets artifacts, architectural features, and types of structures to determine their age and cultural identity. Establishes chronological sequence of development of each culture from simpler to more advanced levels.

- R-6:3 Arbitrates, advises, and administers justice in a court of law. Establishes rules of procedures on questions for which standard procedures have not been established by law or by a superior court. Examines evidence in criminal cases to determine if charges are true or to determine if evidence will support charge. Instructs jury on application of facts to questions of law.
- R-6:4 Interprets results of experiments in physics, formulates theories consistent with data obtained, and predicts results of experiments designed to detect and measure previously unobserved physical phenomena. Applies mathematical methods to solution of physical problems.
- R-6:5 Plans, organizes, and conducts research for use in understanding social problems and for planning and carrying out social welfare programs. Develops research designs on basis of existing knowledge and evolving theory. Constructs and tests methods of collecting data. Collects information and makes judgments through observation and interviews, and review of documents. Analyzes and evaluates data. Interprets methods employed and findings to individuals within agency and community.

MATHEMATICAL DEVELOPMENT

Level 1

Add and subtract two-digit numbers. Multiply and divide 10's and 100's by 2, 3, 4, 5. Perform the four basic arithmetic operations with coins as part of a dollar. Perform operations with units such as cup, pint, and quart; inch, foot, and yard; ounce and pound.

- M-1:1 Weighs items as a part of the packing process, using balance scales. Places container on scale and adds to or removes portion of contents from container until scale registers specified weight.
- M-1:2 Dips sheets of muslin in shellac, tacks sheets in layers on stretcher frame to dry, and measures and cuts dried fabric into squares of specified size, using tape measure and shears.
- M-1:3 Transfers hog-back skins from vat to grading table and measures size and length of skin on graduated board. Separates skins according to size.
- M-1:4 Counts novelty case parts to verify amount specified on work ticket and stacks and bundles parts prior to spraying.
- M-1:5 Tends battery of automatic machines equipped with circular knives that cut paper tubing into containers for shotgun shells. Fills hopper with tubes and starts machine. Verifies length of containers for conformance to standards, using fixed gauge.

Level 2

Add, subtract, multiply, and divide all units of measure. Perform the four operations with like common and decimal fractions. Compute ratio, rate, and percent. Draw and interpret bar graphs. Perform arithmetic operations involving all American monetary units.

- M-2:1 Measures, marks, and cuts carpeting and linoleum with knife to get maximum number of usable pieces from standard size rolls, following floor dimensions or diagrams.
- M-2:2 Measures width of pleats in women's garments, using yardstick. Counts number of pleats in garment and multiplies the number by the price per pleat to determine service charge for cleaning garment.
- M-2:3 Weighs and measures specified quantities of ingredients of infant formulas, using scales, graduated measures, and spoons. Computes number of calories per fluid ounce of formula.
- M-2:4 Sells cigars, cigarettes, corsages, and novelties to patrons in hotels, nightclubs, and restaurants. Collects cash for items sold and makes change.

- M-2:5 Drives truck to transport materials to specified destinations such as railroad stations, plants, or residences. Calculates amount of bill and delivery charge, collects payment for goods delivered, making change as necessary.

Level 3

Compute discount, interest, profit, and loss; commission, markup, and selling price; ratio and proportion; and percentage. Calculate surfaces, volume, weights, and measures.

ALGEBRA: Calculate variables and formulas; monomials and polynomials; ratio and proportion variables; and square roots and radicals.

GEOMETRY: Calculate plane and solid figures, circumference, area, and volume. Understand kinds of angles and properties of pairs of angles.

- M-3:1 Computes wages and posts wage data to payroll records. Computes earnings from timesheets and work tickets, using calculator. Operates posting machine to compute and subtract deductions, such as income tax withholdings, social security payments, and insurance.
- M-3:2 Rents automobiles to customers at hotels and transportation stations. Computes cost of rental, based on per-day and per-mile rates.
- M-3:3 Receives cash from customers in payment for goods or services and records amounts received. Computes bill, itemized lists, and tickets showing amount due, using adding machine or cash register. Makes change and cashes checks.
- M-3:4 Measures tensile strength, hardness, ductility, or other physical properties of metal specimens on various types of testing machines. Calculates values, such as unit tensile strength and percentage elongation.
- M-3:5 Controls purification unit to remove impurities such as moisture and oxygen from helium gas used in balloons. Calculates amount of gas transferred, using slide rule.

Level 4

ALGEBRA: Deal with system of real numbers; linear, quadratic, rational, exponential, logarithmic, angle and circular functions, and inverse functions; related algebraic solution of equations and inequalities; limits and continuity and probability and statistical inference.

GEOMETRY: Deductive axiomatic geometry, plane and solid, and rectangular coordinates.

SHOP Practical application of fractions, percentages, ratio and proportion, measurement, logarithms, practical algebra, geometric constructions, and essentials of trigonometry.

- M-4:1 Inspects flat glass and compiles defect data based on samples to determine variances from acceptable quality limits. Calculates standard control tolerances for flat glass, using algebraic formulas, plotting curves, and drawing graphs.
- M-4:2 Keeps records of financial transactions of establishment. Balances books and compiles reports to show statistics, such as cash receipts and expenditures, accounts payable and receivable, profit and loss, and other items pertinent to operation of business.
- M-4:3 Calculates tonnage and prepares tonnage report of ship's cargo for assessment of port traffic. Converts metric measurements of foreign manifests into pounds and cubic feet, using formulas and calculating machine.
- M-4:4 Lays out and cuts plastic patterns used for pantograph engraving according to sketches or blueprints, using drafting instruments and engraving tools. Establishes reference points on plastic sheet and computes layout dimensions, following blueprints.

- M-4:5 Surveys earth's surface, using surveying instruments, and oversees engineering survey party engaged in determining exact location and measurements of points, elevations, lines, areas, and contours of earth's surface to secure data used for construction, mapmaking, land valuation, mining, or other purposes. Verifies by calculations accuracy of survey data secured.

Level 5

- ALGEBRA: Work with exponents and logarithms, linear equations, quadratic equations, mathematical induction and binomial theorem, and permutations.
- CALCULUS: Apply concepts of analytic geometry, differentiations, and integration of algebraic functions with applications.
- STATISTICS: Apply mathematical operations to frequency distributions, reliability and validity of tests, normal curve, analysis of variance, correlation techniques, chi-square application and sampling theory, and factor analysis.
- M-5:1 Plans survey and collects, organizes, interprets, summarizes, and analyzes numerical data on sampling or complete enumeration bases. Evaluates reliability of sources of data, adjusts and weighs raw data, and organizes and summarizes data into tabular forms amenable to analysis of variance and principles of statistical inference.
- M-5:2 Develops, fabricates, assembles, calibrates, and tests electronic systems and components used in aircraft and missile production and testing operations. Establishes circuit layout dimensions by mathematical calculations and principles.
- M-5:3 Applies knowledge of mathematics, probability, statistics, principles of finance and business to problems in life and health insurance, annuities, and pensions. Constructs probability tables regarding fire, natural disasters, and unemployment, based on analysis of statistical data and other pertinent information.
- M-5:4 Applies principles of accounting to install and maintain general accounting system. Designs new system or modifies existing system to provide records of assets, liabilities, and financial transactions of establishment.
- M-5:5 Plans, designs, conducts, and analyzes results of experiments to study problems in human and animal behavior. Analyzes test results, using statistical techniques, and evaluates significance of data in relation to original hypothesis.

Level 6

- ADVANCED CALCULUS: Work with limits, continuity, real number systems, mean value theorems, and implicit function theorems.
- MODERN ALGEBRA: Apply fundamental concepts of theories of groups, rings, and fields. Work with differential equations, linear algebra, infinite series, advanced operational methods, and functions of real and complex variables.
- STATISTICS: Work with mathematical statistics, mathematical probability and application, experimental design, statistical inference, and econometrics.
- M-6:1 Conducts and oversees analyses of aerodynamic and thermodynamic systems and aerophysics problems to determine suitability of design for aircraft and missiles. Establishes computational procedures for and methods of analyzing problems.
- M-6:2 Analyzes physical systems, formulates mathematical models of systems, and sets up and operates analog computer to solve scientific and engineering problems. Prepares mathematical model of problem, applying principles of advanced calculus and differential equations.
- M-6:3 Observes and interprets celestial phenomena and relates research to basic scientific knowledge or to practical problems such as navigation. Determines mathematically sizes, shapes, brightness, spectra, motions, and positions of sun, moon, planets, stars, nebulae, and galaxies.

- M-6:4 Conducts research in fundamental mathematics and solves or directs solutions to problems in research, development, production, and other activities by mathematical methods. Conceives and develops ideas for application of mathematics such as algebra, geometry, number theory, logic, and topology.
- M-6:5 Conducts research into phases of physical phenomena, develops theories and laws on basis of observation and experiments, and devises methods to apply laws and theory of physics to industry, medicine, and other fields. Describes and expresses observations and conclusions in mathematical terms.

LANGUAGE DEVELOPMENT

Level 1

- READING:** Recognize meaning of 2,500 (two- or three-syllable) words. Read at rate of 95-120 words per minute. Compare similarities and differences between words and between series of numbers.
- WRITING:** Print simple sentences containing subject, verb, and object, series of numbers, names, and addresses.
- SPEAKING:** Speak simple sentences, using normal word order and present and past tenses.
- L-1:1 Delivers telephone directories to residence and business establishments, following oral instructions or address list.
- L-1:2 Obtains reels of motion picture film from stock as specified on shipping order. Wraps paper band bearing film identification around each reel, ties reels with string, and sets them aside for shipment.
- L-1:3 Pastes labels and tax stamps on filled whiskey bottles passing on conveyor. Looks at bottles to ascertain that labels and stamps have been correctly applied. Packs whiskey bottles in cartons. Pastes identification labels onto cartons.
- L-1:4 Packs small arms ammunition in bandoleer belt pockets. Compares ammunition identification data stenciled on belt with work order to ensure packing of correct caliber cartridges. Places cardboard separator between two filled ammunition clips and slides them into cardboard packet.

Level 2

- READING:** Passive vocabulary of 5,000-6,000 words. Read at rate of 190-215 words per minute. Read adventure stories and comic books, looking up unfamiliar words in dictionary for meaning, spelling, and pronunciation. Read instructions for assembling model cars and airplanes.
- WRITING:** Write compound and complex sentences, using proper end punctuation and employing adjectives and adverbs.
- SPEAKING:** Speak clearly and distinctly with appropriate pauses and emphasis, correct pronunciation, variations in word order, using present, perfect, and future tenses.
- L-2:1 Announces availability of seats and starting time of show. Answers such questions as length of performances, coming attractions, and locations of telephones or rest rooms.
- L-2:2 Delivers messages, documents, packages, and other items to offices or departments within establishment.
- L-2:3 Tends machines and equipment that grind, mix, form, and cook raw fish to make fishcakes. Places paste in mixing machine and adds specified amounts of flour, water, and spices.
- L-2:4 Fills requisitions, work orders, or requests for materials, tools, or other stock items. Prepares and attaches shipping tags to containers. Keeps records of materials or items received or distributed.

- L-2:5 Serves food to patrons at counters and tables of coffee shops, lunchrooms, and other dining establishments. Presents menu, answers questions, and makes suggestions regarding food and services.

Level 3

READING: Read a variety of novels, magazines, atlases, and encyclopedias. Read safety rules, instructions in the use and maintenance of shop tools and equipment, and methods and procedures in mechanical drawing and layout work.

WRITING: Write reports and essays with proper format, punctuation, spelling, and grammar, using all parts of speech.

SPEAKING: Speak before audience with poise, voice control, and confidence, using correct English and well-modulated voice.

- L-3:1 Types letters, reports, stencils, forms, addresses, or straight-copy materials from rough draft or corrected copy. Files correspondence, cards, invoices, receipts, and other records in alphabetical or numerical order or according to subject matter, phonetic spelling, or some other system.
- L-3:2 Renders personal service to railroad passengers to make their trip pleasant and comfortable. Greets passengers and answers questions about train schedules, travel routes, and railway services.
- L-3:3 Keeps records of products returned to manufacturer to credit customer's account, to replace damaged merchandise, or to file damage claims. Verifies incoming items against bills of lading. Prepares routing and shipping forms on outgoing items.
- L-3:4 Drives truck over established route to deliver, sell, and display products or render services. Calls on prospective customers to solicit new business. Writes delivery orders.
- L-3:5 Services automobiles, buses, trucks, and other automotive vehicles with fuel, lubricants, and accessories. Prepares daily report of fuel, oil, and accessories sold. Answers customers' questions regarding location of streets and highways, points of interest, and recreational areas.

Level 4

READING: Read novels, poems, newspapers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopedias.

WRITING: Prepare business letters, expositions, summaries, and reports, using prescribed format and conforming to all rules of punctuation, grammar, diction, and style.

SPEAKING: Participate in panel discussions, dramatizations, and debates. Speak extemporaneously on a variety of subjects.

- L-4:1 Composes letters in reply to correspondence concerning such items as request for merchandise, damage claims, credit information, delinquent accounts, or to request information. Reads incoming correspondence, types or dictates reply, or selects and completes form letters.
- L-4:2 Interviews applicants to obtain such information as age, marital status, work experience, education, training, and occupational interest.
- L-4:3 Compiles lists of prospective customers to provide leads to sell insurance. Contacts prospective customers, explains features of policies, and recommends amount and type of coverage based on analyses of prospects' circumstances.
- L-4:4 Inspects and tests storage batteries in process of manufacture to verify conformity with specifications. Records inspection and test results, compares them with specifications, and writes reports for use in correcting manufacturing defects.

- L-4:5 Repairs and overhauls automobiles, buses, trucks, and other automotive vehicles. Reads technical manuals and other instructional materials.

Level 5

- READING: Read literature, book and play reviews, scientific and technical journals, abstracts, financial reports, and legal documents.
- WRITING: Write novels, plays, editorials, journals, speeches, manuals, critiques, poetry, and songs.
- SPEAKING: Conversant in the theory, principles, and methods of effective and persuasive speaking, voice and diction, phonetics, and discussion and debate.
- L-5:1 Introduces various types of radio and television programs, interviews guests, and acts as master of ceremonies. Describes public events, such as parades and conventions, and reads news flashes and advertising copies during broadcasts.
- L-5:2 Instructs students in techniques of public speaking and oral reading to develop effective speech and delivery in them. Teaches enunciation of words, intonation, gestures, and other disciplines of voice and delivery.
- L-5:3 Collects and analyzes facts about newsworthy events by interview, investigation, or observation, and writes newspaper stories that conform to prescribed editorial techniques and format. Interviews persons and observes events and writes story, referring to reference books, newspaper files, or other authoritative sources to secure additional relevant facts.
- L-5:4 Writes service manuals and related technical publications concerned with installation, operation, and maintenance of electronic, electrical, mechanical, and other equipment. Interviews workers to acquire or verify technical knowledge of subject. Rewrites articles, bulletins, manuals, or similar publications.
- L-5:5 Assists legal representatives in preparation of written contracts covering other than standardized agreements. Reviews agreement for conformity to company rates, rules, and regulations. Writes agreement in contractual form and obtains necessary legal department approval.

Level 6

(Same as Level 5)¹

- L-6:1 Directs editorial activities of newspaper and negotiates with production, advertising, and circulation department heads. Confers with editorial policy committee and negotiates with department heads to establish policies and reach decisions affecting publications. Writes leading or policy editorials on specific public issues.
- L-6:2 Plans, organizes, and conducts research for use in understanding social problems and for planning and carrying out social welfare programs. Constructs and tests methods of data collection. Collects, analyzes, and evaluates data. Writes reports containing descriptive, analytical, and evaluative content; interprets methods employed; and submits findings to individuals within agency and community.
- L-6:3 Conducts and oversees analyses of aerodynamic and thermodynamic systems and aerophysics problems to determine suitability of design for aircraft and missiles. Evaluates test data and interprets established data to others. Prepares reports covering such subjects as power plant installation, thermal ice protection, air-conditioning, pressurization, and heat transfer.

¹The diversity of language courses offered at the college level precludes distinguishing the two top levels of language development from each other by specific definitions. Instead, the college levels are characterized as a continuum, during which time language content remains the same but is progressively refined or specialized. Therefore, Levels 5 and 6 of language development share the same definition. Level 6 represents more advanced development of the definition content.

- L-6:4 Advises corporations concerning legal rights, obligations, and privileges. Studies Constitution, statutes, decisions, and ordinances. Examines legal data to determine advisability of defending or prosecuting lawsuit.
- L-6:5 Teaches one or more subjects, such as economics, chemistry, law, or medicine, within a prescribed curriculum. Prepares and delivers lectures to students. Reviews current literature in field of study. Writes articles for publication in professional journals.

PROCEDURE FOR EVALUATING AND RECORDING GED REQUIREMENTS

Determine the level of General Educational Development required for a worker to acquire the background knowledge and follow the instructions in the specific job-worker situation. Evaluate the job tasks in terms of the three categories of the GED scale. After determining the level required for Reasoning, Math, and Language, based on comparison of job duties with definitions and benchmarks in the HAJ, enter the level number for each category in Item 9 of the JAR.