STANDARDS 2.0

Texas Adult Education and Literacy Content Standards 2.0

TEXAS WORKFORCE COMMISSION

INTRODUCTION

The Texas Adult Education and Literacy Content Standards 2.0 (Standards 2.0)

Table of Contents

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Introduction

What is this guide?

The Texas Adult Education and Literacy Content Standards 2.0 (Standards 2.0) aligns the 2016 *Texas Adult Education and Literacy Content Standards* to the knowledge, skills, and abilities required for success in in-demand entry- and intermediate-level jobs. This update and alignment of the 2016 Content Standards, which are unchanged, brought together employers and adult educators to evaluate the 2016 standards against what entry and middle skill work requires in occupations within four industry clusters:

- Advanced manufacturing
- Construction and extraction
- Healthcare sciences
- Transportation, distribution, and logistics

Standards 2.0 aims to illustrate how the standards are relevant to work while maintaining the competencies needed to prepare students for educational progress and transition to postsecondary education or training. This is accomplished by bridging the 2016 academic standards to crosswalks that define the specific knowledge skills and abilities, and detailed work activities required for work.

What are content standards and what do they address?

Standards are measures, norms, or models that are used to make comparative evaluations and establish a baseline for quality, safety, specifications, or effectiveness. Standards have been defined differently within many disciplines and over a considerable length of time, so it is important to clarify how these definitions are used in education.[1] Agreeing on definitions lays the groundwork for what learners should know and be able to do within a specific Content Area or Subarea at the exit or mastery level. The standards in *Standards 2.0* reflect the knowledge, skills and abilities that academic and employment performance requires.

Standards 2.0 provides a clear outline of content and skills so that programs can develop and align curriculum, instruction, and assessments but do not prescribe class lessons or assignments and are neutral regarding teaching methodology.

Standards 2.0 provides adult and postsecondary educators, employers, and workforce development partners with a resource to understand, in articulated detail, the skills needed to support, plan, and implement strategies that support the progress of adult education students toward their education, training and career goals.

[1] For more information on standards-based education in adult education, see Seufert et al. A Process Guide for Establishing State Adult Education Content Standards (American Institutes for Research, 2005.

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2016 Content Standards–Elevated Rigor and College Readiness

The 2016 Content Standards were an ambitious step forward to increase the rigor and relevance of adult education through alignment to the following assessments and standards[2]:

- Texas College & Career Readiness Standards (TCCRS)
- End-of-Course Exams for the State of Texas Assessments of Academic Readiness (STAAR)
- Texas Essential Knowledge and Skills (TEKS)
- Texas Certificate of High School Equivalency (TxCHSE)
- Texas Success Initiative Assessment (TSIA).

Expectations for increased performance have also been set by the release of the new National Reporting System (NRS) Performance Level Descriptors (Appendix A) which are now reflected in revised tests approved for use in adult education such as the Test of Adult Basic Education 11/12 (TABE 11/12).

The trend toward higher expectations for adult learners can be broadly described:

- **In Mathematics,** increased academic rigor reflects content typically taught in both beginning and more advanced algebra and geometry courses, as well as in data analysis and statistics classes.
- **In English Language Arts (ELA),** the standards demand robust analytic and reasoning skills, and strong oral and written communication skills.
- **In English as a Second Language (ESL),** the standards have been expanded from a focus on basic personal communication skills to one that includes the integration of listening, speaking, reading and writing competencies required for participation in academic environments.

Because the standards are set at exit or mastery level, they demonstrate expectations of mastery of content, skills and performance. Standards and the supporting benchmarks offer educators and students a transparent view, across levels, of what is expected to exit or master education and training competencies.

[2] More detail on the 2016 standards development process can be found in Appendix D – In-Depth Description of the Development Process for the 2016 Adult Education and Literacy Content Standards.

2016 Content Standards–Elevated Rigor and College Readiness (cont.)

Once standards are established, educators can then develop a curriculum, instructional strategies, and assessments to build or document mastery of the skills and knowledge represented in the standards. Because standards represent the exit level knowledge and skills, they must be in place before the field constructs what will be taught at each level (the curriculum), how the content is taught (instruction), and how mastery of the content and skills will be measured (assessment).

Standards 2.0 - Aligning to Industry Literacy Requirements

Standards 2.0 includes crosswalks that link the 2016 standards to detailed work activities and skills as they are applied in work in four industry clusters: advanced manufacturing, construction and extraction, healthcare sciences, and transportation, distribution, and logistics.

Why these industries?

Each of the four industry clusters are important to the Texas economy. They were selected for alignment to the standards based on the following factors:

- Documented Growth: The industry is documented to grow in the next decade.
- Statewide Representation: The sector is well represented across most regions of Texas.
- Career Pathways Articulation: The sector has well-defined pathways from entry-level jobs that are accessible to many adult education students and have clear pathways into middle- and higher-skilled occupations.

The methodology used to develop these crosswalks can be applied to other sectors.[3]

[3] The Standards Alignment to Industry Clusters project final report provides more detail on how the methodology to crosswalk these four industries could be used for other industries

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Standards 2.0 - Aligning to Industry Literacy Requirements (cont.)

What are the limitations of this update of the standards?

While *Standards 2.0* describes the discrete skills valued by employers in four driver industries of the Texas economy, the industry-related examples that are aligned with the academic standards are not exhaustive. *Standards 2.0* does not provide an in-depth review of credentials required and valued in these sectors either.

Working with individual employers at the local or regional level, education and training staff, and workforce development specialists can use this information to elicit more specific, and local, examples of workplace applications of knowledge and skills. O*NET, the online occupational information network database sponsored by the U.S. Department of Labor, can also be used to research additional jobs.[4]

The Standards Alignment to Industry Clusters Project and the Development of *Standards 2.0*

The Standards Alignment to Industry Clusters (SAIC) project was created to review the 2016 Content Standards and align them to industry literacy requirements. Under the guidance of the Texas Workforce Commission, four lead organizations worked in partnership with adult educators and employers from the four target industries to develop the content for *Standards 2.0.* The forty-one subject matter experts have extensive backgrounds in training, education, and the world of work. Over a year's time (June 2017 – June 2018), the experts convened in person and virtually to align the knowledge, skills, and abilities needed for in-demand jobs with career potential with the 2016 AEL Content Standards .[5]

[4] O*NET provided the basis for much of the work-related content that is included in *Standards 2.0.* There is more information about O*NET, including how it can be used as a career navigation resource, in the *Standards 2.0* project final report

[5] More detail on the Standards Alignment to Industry Clusters development process can be found in Appendix E–Description of the Standards Alignment to Industry Clusters Project (2017-2018).

Standards 2.0 - Aligning to Industry Literacy Requirements (cont.)

- **Employers:** The twenty-eight industry representatives ranged from former oil and gas executives, construction trades entrepreneurs, and healthcare human resources directors, to manufacturing training managers and distribution center managers. They came from diverse geographic regions of the state. Many had experience partnering with educators to help prepare students for work in their sectors. Several had on-site learning programs at their companies such as English as a Second Language and classes for technical skills.
- **Adult Educators:** The fourteen subject matter experts representing adult education and literacy programs from around the state have years of experience in the development, delivery, and management of instruction. The team included bilingual instructors and program managers as well as those with expertise in the development and delivery of workplace literacy.
- **Lead Partners:** Four primary partners guided the development of *Standards 2.0*. The partners included experts with decades of experience in adult literacy and workforce research and development, national and state standards, public-private workforce education partnerships, and industry training and credentialing.
    - Literacy Texas - the project contractor and statewide literacy coalition, connecting and equipping literacy providers through resources, training, networking, and advocacy.
    - Educational Testing Service (ETS) - the world's largest educational assessment and research organization.
    - National Center for Construction Education and Research (NCCER) – dedicated to standardized training and credentialing for the industry to develop a workforce that is safe and productive.
    - Haigler Enterprises International, Inc. - a consulting firm with extensive experience in adult literacy, workforce analysis, public-private partnerships, and academic and skills standards.

The experts reviewed each standard and subarea standard in the three content areas of the 2016 Content Standards and determined the application to entry-level and mid-level jobs in the four targeted industry clusters using O*NET elements for these jobs that were most closely related to the standards and benchmarks. They then combined this research with their own local wisdom to develop job-specific examples that demonstrate how the standards are applied at work.

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How to Read the Standards

Content Area
Content Areas are the big ideas of a discipline that reverberate as themes throughout the curriculum.
(Designated by Roman numerals—e.g., III)

Subarea
Within each Content Area are Subareas that further delineate the Content Area.
(Designated by the Roman numeral of the Content Area with an Arabic numeral--e.g., III.3)

Content Standard/Subarea Standard
Content Standards and Subarea Standards describe what learners should know and be able to do within a specific content area.
The ESL Content Area contains four overarching standards followed by several subarea standards.
(Both are designated by bold capital letters—e.g., III.3.A)

Benchmark
Benchmarks describe the set of skills that learners need to develop and achieve to meet the more broadly stated standards.
(Designated by Arabic numerals—e.g., III.3.A.1.6)

O*NET Element Related to Standard and Benchmark
O*NET Elements list knowledge, skills, abilities, and work styles from the O*NET database.
(Designated by bulleted statements)

O*NET Detailed Work Activity and Industry Examples
Detailed Work Activities describe literacy requirements for specific jobs where relevant. Industry Examples list the industry cluster, job positions, and key jobs where given standards are applicable.
(Designated by boxed text.)

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How to Read the Standards (cont.)

Example:

I. English Language Arts
Subarea I.2 – Reading

D. Comprehension of a Variety of Informational Texts. Describe, analyze, and evaluate diverse informational texts, and identify supporting evidence from the text to support understanding

1. Identify and distinguish differences in structure and purpose for a range on informational texts, regardless of print or digital presentation mode (e.g., textbooks, biographical sketches, letters, diaries, directions, procedures, magazines, essays, primary source historical documents, editorials, news stories, periodicals, catalogs, manuals, procedures and other job-related materials, schedules, speeches, memoranda, public documents, and maps.)

O*NET Element related to Standard and Benchmark:

- **Reading Comprehension.** Understand written sentences and paragraphs in work-related documents.
- **Attention to Detail.** Be careful about detail and thorough in completing work tasks.

O*NET Detailed Work Activity	Industry Examples
Interpret blueprints, specifications, or diagrams to inform development of operation activities.	**Industry: Construction and Extraction** **Position: First-line Supervisor** **Example:** Reads specifications, such as blueprints, to determine construction requirements or to plan procedures.

Content Areas Overview

The Texas Adult Education Content Standards are organized around three broad Content Areas. These broad Content Areas are: English Language Arts, Mathematics, and English as a Second Language (ESL). Within each Content Area, there are Subareas that delineate the different topics within the Content Area. Subareas typically consist of several Content Standards and Benchmarks. This structure assists in breaking a broad Content Area into manageable groupings of information.

Content Area I – English Language Arts

Subareas:

I.1 – Reading Foundations
Students develop phonological awareness at the word level, progress in understanding sound-symbol relations, and increase fluency by working with words.

I.2 – Reading
Students read and understand a wide variety of literary and informational texts.

I.3 – Writing
Students compose a variety of written texts with a clear controlling idea, coherent organization, and sufficient detail.

I.4 – Oral and Written Conventions
Students learn how to use the oral and written conventions of the English language in speaking and writing.

I.5 – Research
Students are expected to know how to locate a range of relevant sources and evaluate, synthesize, and present ideas and information.

I.6 – Listening and Speaking
Students practice listening and responding to the ideas of others while contributing their own ideas in conversations and in groups.

Content Areas Overview (cont.)

Content Area II – Mathematics

Subareas:

II.0 – General Mathematical Processes

II.1 – Numerical Representations and Relationships

Students understand numbers, ways of representing numbers, relationships among numbers, and number systems.

II.2 – Computations

Students compute fluently and make reasonable estimates.

II.3 – Geometry

Students analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships. They learn to specify locations and describe spatial relationships using coordinate geometry and other representational systems. Students apply transformations and use symmetry to analyze mathematical situations and use visualization, spatial reasoning, and geometric modeling to solve problems.

II.4 – Measurement including Geometry

Students understand measurable attributes of objects and the units, systems, and processes of measurement, and apply appropriate techniques, tools, and formulas to determine measurements.

II.5 – Algebraic Relationships

Students understand patterns, relations, and functions. They represent and analyze mathematical situations and structures using algebraic symbols. Students use mathematical models to represent and understand quantitative relationships and analyze change in various contexts.

II.6 – Non-linear Equations, Functions, and Inequalities

Students understand and use patterns and relationships of non-linear functions. They represent and analyze mathematical situations and structures using non-linear equations, functions, and inequalities. Students use mathematical models to represent and understand quantitative relationships.

II.7 – Data Analysis

Students formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them. They select and use appropriate statistical methods to analyze data. Students develop and evaluate inferences and predictions that are based on data. They understand and apply concepts of probability.

II.8 – Financial Literacy

Students develop the knowledge and skills to make sound, informed financial decisions that will allow them to lead financially secure lifestyles and understand personal financial responsibility.

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Content Areas Overview (cont.)

Content Area III – English as a Second Language

Subareas:

III.1 – Listening Skills

English Language Learners (ELLs) become increasingly able to comprehend what they hear, to retrieve information, and to make inferences and connections. The ELLs listen to speakers in a variety of contexts with a variety of English accents.

III.2 – Speaking Skills

ELLs are able to speak in a variety of situations and settings using increasingly challenging vocabulary and language complexity with increasing fluency and accuracy.

III.3 – Reading Skills

The ELL reads a variety of texts at different levels of complexity for a variety of purposes with an increasing level of comprehension and fluency.

III.4 – Writing Skills

The ELL writes in a variety of forms with increasing ease, accuracy, and complexity to effectively address specific purposes and audiences.

ELA

English Language Arts Content Standards

Introduction – English Language Arts Content Standards and Benchmarks

Language demands are more rigorous today than in the past for both academic and work environments. Adults must read, write, speak, and listen with increasing levels of complexity to engage in learning and accomplish work in the technology rich world we now live in. Strong English language skills are necessary for critical thinking, communication and social engagement, both at the work site and the classroom.

English Language Arts is the broad Content Area. There are Subareas within it that further delineate the Content Area. Each of these Subareas has multiple Content Standards with supporting Benchmarks. Detailed Work Activities and examples of jobs show how the standards are relevant to specific industries.

To inform these content standards, the work group and project staff in the first phase of the project reviewed research on the skills and content knowledge Adult Education students need to succeed in college and careers. The work group and project staff also examined the Texas College and Career Readiness Standards, the College and Career Readiness Standards for Adult Education (CCRS), the English Language Arts and Reading Texas Essential Knowledge and Skills for English IV vertical alignment, and the National Council of Teachers of English/International Reading Association Standards for the English Language Arts.

The first phase focused on ELA skills necessary for higher education. The second phase focused on work. The experts in phase two of the project examined how employees apply the skills, reading, writing, speaking, and listening, to perform successfully on the job. While the examples provided are specific to the four-target industry sectors – advanced manufacturing, construction and extraction, healthcare sciences, and transportation/distribution/logistics – these skills are in demand throughout business and industry in Texas.

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Subarea I.1 – Reading Foundations

O*NET Elements related to this Subarea:

- **Knowledge of English.** Know the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- **Reading Comprehension.** Understand written sentences and paragraphs in work-related documents.

Subarea Standards:

A. Beginning Reading Skills/Print Awareness. Understand that the function of conventional and digital print is to convey meaning and that there is a connection between oral and written language, recognize the ways print is organized, and recognize the conventions for reading and writing.

1. Display ability to segment words into separate parts, blend sounds to form words, and manipulate sounds aurally and orally.

B. Beginning Reading Skills/Phonemic Awareness. Understand that the sounds of spoken language work together to make words.

1. Display awareness of phonics (e.g., letter-sound knowledge, segmenting, blending, and manipulating sounds aurally and orally).

C. Beginning Reading Skills/Word Analysis and Phonics Instruction. Understand there is a relationship between letters and sounds through written language.

1. Use the relationships between letters and sounds, spelling patterns, and analysis of word structure to decode/encode written and spoken English.
2. Use word analysis skills such as phonetic and morphemic analysis.

D. Beginning Reading/Strategies. Develop increasingly sophisticated strategies for comprehending a variety of diverse texts.

1. Determine what print and digital texts say explicitly and make logical inferences from texts (e.g., written directions, signs, captions, warning labels, and informational books).

Subarea I.1 – Reading Foundations (cont.)

O*NET Detailed Work Activity	Industry Examples
Plan production or operational procedures or sequences.	**Industry: Advanced Manufacturing** **Position: Computer Numeric Controller (CNC) Machinist** **Example: Studies sample parts, blueprints, drawings, or engineering information to determine methods or sequences of operations needed to fabricate products.**
Read work orders from supervisors or homeowners to determine work requirements.	**Industry: Construction and Extraction** **Position: Painter** **Example:** Mixes and matches colors of paint, stain, or varnish with oil or thinning and drying additives to obtain desired colors and consistencies.
Follow protocols or regulations for healthcare activities.	**Industry: Healthcare Sciences** **Position: Home Health Aide** **Example:** Reads prescriptions for oral medications, under the written direction of physician or as directed by home care nurse or aide, and ensures patients take their medicine.
Follow safety procedures for vehicle operation.	**Industry: Transportation, Distribution, Logistics** **Position: Heavy and Tractor-Trailer Truck Driver** **Example:** Reads and follows appropriate safety procedures for transporting dangerous goods.
Study product information to acquire professional knowledge.	**Industry: Transportation, Distribution, Logistics** **Position: Shipping, Receiving, and Traffic Clerks** **Example:** Examines shipment contents and compares with records, such as manifests, invoices, or orders, to verify accuracy.

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Subarea I.1 – Reading Foundations (cont.)

E. Fluency. Read a text accurately and with fluency.

1. Read developmentally appropriate text with fluency (rate, accuracy, expression, phrasing).

Subarea I.2 – Reading

O*NET Elements related to this Standard and its Benchmarks:

- **Knowledge of English.** Know the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- **Reading Comprehension.** Understand written sentences and paragraphs in work-related documents.
- **Attention to Detail.** Be careful and thorough in completing detailed work tasks.
- **Critical Thinking.** Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Subarea I.2 – Reading (cont.)

Subarea Standards:

A. Vocabulary Development. Apply vocabulary and concepts accurately in reading, speaking, and writing.

1. Identify new words and concepts by studying their relationships to other words and concepts by using context clues.
2. Apply knowledge of roots and affixes to infer the meanings of new words.
3. Use printed, digital, and web-based resources (e.g., dictionaries, glossaries, and thesauruses) to confirm the meanings of words

O*NET Detailed Work Activity	Industry Examples, if relevant
Examine documents to verify adherence to requirements.	**Industry: Advanced Manufacturing** **Position: Production, Planning Clerk** **Example:** Examines documents, materials, or products and monitors work processes to assess completeness, accuracy, and conformance to standards and specifications.
Proofread documents, records, or other files to ensure accuracy.	**Industry: Healthcare Sciences** **Position: Receptionist** **Example:** Computes, records, and proofreads data and other healthcare-related information, such as records or reports.
Maintain current knowledge related to work activities.	**Industry: Construction and Extraction** **Position: Welders, Carpenters, Millwrights** **Example:** Needs to understand safety guidelines, local building codes, signs and labels, specifications and more to do the job safely and effectively.

Subarea I.2 – Reading (cont.)

B. Comprehension of Literary Texts in a Variety of Genres and Presentation Modes. Comprehend a wide range of literary texts (novels, poems, plays, etc.) from different world cultures and historical periods.

1. Analyze themes, structures, and elements of contemporary, traditional, and classical literary texts from various cultures.
2. Analyze and compare the use of language in diverse literary works from a variety of world cultures and historical periods.
3. Analyze a wide variety of texts from different world cultures and historical periods to determine what they suggest about the historical period and cultural contexts in which they were written.

C. Comprehension of Literary Texts. Locate explicit textual information, draw inferences, and analyze and evaluate varied structural patterns, stylistic elements, and features of literary nonfiction and fiction. Identify supporting evidence from the text to support understanding.

1. Draw and support inferences from texts to summarize what is presented, draw conclusions, and distinguish facts from opinions.
2. Identify explicit and implicit information including main ideas, supporting evidence, and author's purpose.
3. Evaluate the use of both literal and figurative language to inform and shape the perceptions of readers: compare and analyze how features of genres are used across texts (e.g., tone, irony, mood, figurative language, allusion, diction, dialogue, symbolism, point of view, voice, understatement and overstatement, time and sequence, narrator, and poetic elements such as sound, imagery, and personification).

Subarea I.2 – Reading (cont.)

D. Comprehension of a Variety of Informational Texts. Describe, analyze, and evaluate diverse informational texts, and identify supporting evidence from the text to support understanding.

1. Identify and distinguish differences in structure and purpose for a range of informational texts, regardless of print or digital presentation mode (e.g., textbooks, biographical sketches, letters, diaries, directions, procedures, magazines, essays, primary source historical documents, editorials, news stories, periodicals, catalogs, manuals, procedures and other job-related materials, schedules, speeches, memoranda, public documents, and maps).
2. Identify and analyze the purpose and message of informational texts, including pros and cons, author's bias, and alternate points of view when applicable.
3. Analyze informational texts for what they suggest about the historical period and cultural contexts in which they were written.

O*NET Detailed Work Activity	Industry Examples
Interpret blueprints, specifications, or diagrams to inform development of operation activities.	**Industry: Construction and Extraction** **Position: First-line Supervisor** **Example:** Reads specifications, such as blueprints, to determine construction requirements or to plan procedures.
Read work orders or other instructions to determine product specifications or materials requirements.	**Industry: Construction and Extraction** **Position: HVAC Technician** **Example:** Reads to understand manufacturer's detailed instructions for installation of equipment, safety procedures, and material data sheets (MDS).
Stay informed about current developments in field of specialization.	**Industry: Transportation, Distribution, Logistics** **Position: General Warehouse, all functions** **Example:** General Warehouse – Drivers, all clerks, and management at every level must have reading comprehension for basic items such as handbooks or policy.

Subarea I.2 – Reading (cont.)

E. Comprehension of Persuasive Texts. Locate explicit textual information, draw inferences, and analyze and evaluate information about persuasive texts. Identify supporting evidence from the text to support understanding.

1. Identify and analyze the audience, purpose, and message of a persuasive text.
2. Draw and support inferences from texts to summarize, draw conclusions, and distinguish facts from opinions.
3. Analyze the presentation of information in a range of persuasive texts to determine and judge the strength, sufficiency, and quality of evidence used by the author; the coherence and logic of the presentation; credibility of the argument (e.g., author's bias, author's expertise, authenticity); clarity of purpose; consistency; effectiveness of organizational pattern; validity of reasoning; and use of rhetorical devices to serve a purpose (e.g., propaganda techniques, appeal to a friendly or hostile audience, and effective modes of persuasion).
4. Evaluate the use of print and digital text features, graphics, and informational aides in persuasive texts to determine where to locate information and enhance comprehension and credibility (e.g., guide words, title page, table of contents, index, glossary, headings, subheadings, keywords, and illustrations and photographs).
5. Identify, analyze, and evaluate similarities and differences in how multiple texts present information (e.g., vocabulary, language use, persuasive structure, format, arguments and evidence, and omissions or ambiguities).

O*NET Detailed Work Activity	Industry Example
Scan short texts to locate specific information.	**Industry: Healthcare Sciences** **Position: Dieticians and Nutritionists** **Example:** Reads information (e.g., wellness material) in order to assess nutritional needs, diet restrictions, and current health plans to develop and implement dietary-care plans and provide nutritional counseling.

NOTE: Although persuasion is important for success in many positions in the four industries – e.g., working with customers – the documentation used by employees is more informational than persuasive. Persuasive texts are used in a variety of occupations in other sectors – for example, sales and marketing.

Subarea I.2 – Reading (cont.)

F. Comprehension of Expository Texts. Locate explicit textual information, draw complex inferences, and analyze and evaluate the information within and across texts of varying length.

1. Identify explicit and implicit textual information, including main idea, point of view, and author's purpose (e.g., full-length feature articles in newspapers, magazines, and the Internet).
2. Draw and support inferences from texts to summarize, draw conclusions, and distinguish facts from opinions.
3. Analyze the presentation of information and the strength and quality of evidence used by the author. Assess the coherence and logic of the presentation and the credibility of the information presented.
4. Evaluate the use of print and digital text features, graphics, and informational aides in informational texts to determine where to locate information and enhance comprehension (e.g., guide words, title page, table of contents, index, glossary, headings, subheadings, keywords, and illustrations and photographs).
5. Identify, analyze, and evaluate similarities and differences in how multiple texts present information (e.g., vocabulary, language use, expository structure, format, arguments and evidence, and omissions or ambiguities).

O*NET Detailed Work Activity	Industry Examples
Interprets blueprints, specifications, or diagrams to inform installation, development, or operation activities.	**Industry: Construction and Extraction** **Position: Heating, Ventilation, and Air Conditioning (HVAC) Installer/Technician** **Example:** Reads plans to make adjustments for installations of equipment. Problem solving will be required to make necessary repairs, and worker will be required to understand evolving technologies and equipment changes.
Reviews work orders or schedules to determine operations or procedures.	**Industry: Transportation, Distribution, Logistics** **Position: Laborer, Material Handler** **Example:** Reads work orders or receives oral instructions to determine work assignments or material or equipment needs. Attaches identifying tags to containers or marks them with identifying information.

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Subarea I.3 – Writing

O*NET Elements related to this Standard and its Benchmarks:

- **Writing.** Communicate effectively in writing as appropriate for the needs of the audience.
- **Written Expression.** Communicate information and ideas in writing so others will understand.

Subarea Standards:

A. Writing Process. Use a recursive process to prewrite, compose, revise, and edit a variety of texts that demonstrate clear focus, logical development of ideas in well-organized paragraphs, and the use of language that advances the author's purpose.

1. Use various prewriting strategies such as brainstorming, freewriting, listing, and mapping to generate ideas.
2. Identify and evaluate effective strategies that demonstrate the writer's purpose and audience (e.g., to explain, inform, analyze, entertain, reflect, and persuade).
3. Gather information relevant to the topic and purpose, keeping accurate records of outside sources to avoid plagiarism.
4. Evaluate relevance, quality, sufficiency, and depth of preliminary ideas and information. Organize material generated and formulate a thesis.
5. Craft multiple drafts and revisions to refine and revise key ideas to support thesis, and to organize for logic and flow using transitions; ensure accuracy of grammar, punctuation, and other conventions; confirm references and accuracy of information and cite references.
6. Edit writing for proper voice, tense, sentence structure, and mechanics, assuring that it conforms to Standard American English (e.g., use a checklist to guide proofreading; edit for grammar, punctuation, capitalization; use resources to resolve issues of usage).
7. Apply proper writing conventions (e.g., organizational pattern, format, language, and tone) to write personal and business correspondence (e.g., informal letters, memos, job application letters, and resumes); and use available digital and web-based resources, such as publishing software or graphics programs to produce and publish written work.

Subarea I.3 – Writing (cont.)

O*NET Detailed Work Activity	Industry Examples
Prepare reports.	**Industry: Construction and Extraction** **Position: Service Unit Operator – Oil, Mining, Gas** **Example:** Prepares reports of services rendered, tools used, or time required for billing purposes.
Prepare and process emails, memos, correspondence, or other documents.	**Industry: Healthcare Sciences** **Position: Receptionist** **Example:** Reproduces documents from notes or rough drafts utilizing computer software.
Prepare and process emails.	**Industry: Transportation, Distribution, Logistics** **Position: Logistics Manager, Supervisor, Clerks** **Example:** Writes emails to a local vendor about the quality of products that are being delivered through the contract.

Subarea I.4 – Oral and Written Conventions

O*NET Elements related to this Standard and its Benchmarks:

- **Oral Expression.** Communicate information and ideas in speaking so others will understand.
- **Writing.** Communicate effectively in writing as appropriate for the needs of the audience.
- **Written Expression.** Communicate information and ideas in writing so others will understand.
- **Attention to Detail.** Be careful and thorough in completing detailed work tasks.

Subarea Standards:

A. Language Conventions. Understand the conventions of language when speaking and writing.

1. Understand and apply the parts of speech in the context of reading, writing, and speaking. Use capitalization conventions in writing (e.g., within divided quotations, historical periods and events, geological eras, and scientific terms).
2. Develop oral and written text (e.g., sentences, paragraphs, and longer works) that demonstrate control of vocabulary, voice, and structure suitable for specific audiences and purposes.
3. Use proper punctuation conventions in writing (e.g., colons, quotation marks, and dashes; apostrophes in contractions and possessives; commas with introductory phrases and dependent clauses; semi colons or a comma in compound sentences; commas in a series; and ellipses to indicate a pause, break, or omission).

Subarea I.4 – Oral and Written Conventions (cont.)

O*NET Detailed Work Activity	Industry Examples
Prepare documentation for contracts, transactions, or regulatory compliance.	**Industry: Advanced Manufacturing** **Position: Production Planning Clerk** **Example:** Revises production schedules when required due to design changes, labor or material shortages, backlogs, or other interruptions, collaborating with management, marketing, sales, production, or engineering.
Communicate with other construction or extraction personnel to discuss project details.	**Industry: Construction and Extraction** **Position: Electrician** **Example:** Advises management on whether continued operation of equipment could be hazardous.
Prepares operational reports or records.	**Industry: Healthcare Sciences** **Position: Information Clerk** **Example:** Processes and prepares memos, correspondence, travel vouchers, or other documents; file and maintain records.
Communicate details of a situation to appropriate personnel.	**Industry: Transportation, Distribution, Logistics** **Position: Cargo and Freight Agents** **Example:** Contacts vendors or claims adjustment departments to resolve shipment problems or contact service depots to arrange for repairs.

Subarea I.4 – Oral and Written Conventions (cont.)

B. Print Production. Use basic computer skills.

1. Demonstrate basic computer processing skills, and make efficient use of technology such as spellcheck, font changes, printing, etc.
2. Adapt email style to purpose and audience.
3. Master a range of communication protocols for use in the workplace.

O*NET Detailed Work Activity	Industry Examples
Operate computers or computerized equipment.	**Industry: Construction and Extraction** **Position: Service Unit Operator – Oil, Mining, Gas** **Example:** Prepares reports of services rendered, tools used, or time required for billing purposes.
Enter information into databases or software programs.	**Industry: Healthcare Sciences** **Position: Unit Coordinator** **Example:** Communicates clearly and effectively by email to clinical and non-clinical departments and staff members to ensure appropriate patient flow and safe patient care.
Prepare and process emails.	**Industry: Transportation, Distribution, Logistics** **Position: Clerks, Managers, Supervisors** **Example:** Responds to questions, answers, and gives day-to-day responses via email. Uses email to document day-to-day operations, rationales, performance, evaluations, and observations.
Prepare and process emails.	**Industry: Transportation, Distribution, Logistics** **Position: Logistics Manager** **Example:** Provides an email to a local vendor about the quality of products that are being delivered through the contract.

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Subarea I.5 – Research

O*NET Elements related to this Standard and its Benchmarks:

- **Attention to Detail.** Be careful and thorough in completing detailed work tasks.
- **Reading Comprehension.** Understand written sentences and paragraphs in work related documents.
- **Written Expression.** Communicate information and ideas in writing so others will understand.
- **Writing.** Communicate effectively in writing as appropriate for the needs of the audience.
- **Dependability.** Be reliable, responsible, and dependable in fulfilling obligations.
- **Oral Expression.** Communicate information and ideas in speaking so others will understand.
- **Speaking.** Talk to others to convey information effectively.

Subarea I.5 – Research (cont.)

Subarea Standards:

A. Planning Research. Use a variety of strategies to plan research.

1. Formulate research topics and questions from the curriculum, current events, and the workforce (e.g., identify possible topics by brainstorming, listing questions, using idea webs; organize prior knowledge about a topic; develop a course of action; and determine how to locate necessary information).
2. Narrow research topics and develop a timeline for completing work.

O*NET Detailed Work Activity	Industry Examples
Test products or subassemblies for functionality or quality.	**Industry: Advanced Manufacturing** **Position: Quality Assurance Technician** **Example:** Verifies the readings and records the results for equipment calibrations. Identifies, assists, addresses, and documents quality holds. Reads labels on products to ensure accuracy of shop orders.
Organize informational materials.	**Industry: Construction and Extraction** **Position: Construction Carpenters** **Example:** Maintains records, documents actions, and presents written progress reports.
Follow protocols or regulations for healthcare activities.	**Industry: Healthcare Sciences** **Position: Sterile Processing Technician I** **Example:** Monitors, reads, documents, and interprets parameters for all types of sterilizers to ensure proper function and patient safety.

Subarea I.5 – Research (cont.)

B. Gathering Sources. Determine, locate, explore, and systematically document a broad range of relevant print, digital, and web-based resources for addressing a research question.

1. Select information from credible sources related to the topic (e.g., informational books, pictures, charts, indexes, videos, television programs, speeches, technical documents, periodicals, Internet sources, such as websites, podcasts, blogs, and electronic bulletin boards, and personal observation).
2. Use source material ethically to avoid plagiarism and note how to properly cite a variety of sources.
3. Systematically record gathered information (e.g., use notes, maps, charts, graphs, tables, and other graphic organizers; paraphrase and summarize information; gather direct quotes; and provide narrative descriptions).
4. Evaluate the validity and reliability of sources (e.g., the motives and perspectives of the author; credibility of the author and sources; date of publication; use of logic, propaganda, bias, and language; comprehensiveness of evidence; and strengths and limitations of the source relative to audience and purpose).

O*NET Detailed Work Activity	Industry Examples
Enter information into databases or software programs.	**Industry: Advanced Manufacturing** **Position: Production, Planning, and Expediting Clerks** **Example:** Compiles operational or personnel records, such as time and production records, inventory data, repair or maintenance statistics, or test results.
Record vital statistics or other health information.	**Industry: Healthcare Sciences** **Position: Receptionist** **Example:** Enters data, such as demographic characteristics, history and extent of disease, diagnostic procedures, or treatment into computer.
Record details of deliveries or shipments.	**Industry: Transportation, Distribution, Logistics** **Position: Freight and Cargo Inspectors, Checkers** **Example:** Records details about freight conditions, handling of freight, and any problems encountered.

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Subarea I.5 – Research (cont.)

C. Organizing and Presenting Ideas. Design and produce a written or oral presentation.

1. Organize and present ideas and information according to the purpose of the research and the audience.
2. Synthesize the research into a written or oral presentation.

O*NET Detailed Work Activity	Industry Examples
Discuss goods or services information with customers or patrons.	**Industry: Multiple** **Position: Customer Service Representative** **Example:** Confers with customers by telephone or in person to provide information about products or services, takes or enters orders, cancels accounts, or obtains details of complaints.
Document operational procedures.	**Industry: Advanced Manufacturing** **Position: Inspector** **Example:** Writes test or inspection reports describing results, recommendations, or needed repairs.
Collaborate with healthcare professionals to plan or provide treatment.	**Industry: Healthcare Sciences** **Position: Sterile Processing Technician I** **Example:** Effectively communicates, verbally and in writing, with customers, peers, and visitors.

Subarea I.6 – Listening and Speaking

O*NET Elements related to this Standard and its Benchmarks:

- Active Listening. Give full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Attention to Detail. Be careful and thorough in completing detailed work tasks.
- Critical Thinking. Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- Speaking. Talk to others to convey information effectively.
- Speech Recognition. Identify and understand the speech of another person.
- Adaptability/Flexibility. Be open to change (positive or negative) and to considerable variety in the workplace.
- Cooperation. Be pleasant with others on the job and displaying a good-natured, cooperative attitude.

Subarea Standards:

A. Listening. Apply listening skills in informal and formal situations as an individual and as a member of a group in a variety of settings (e.g., lecture, discussions, conversations, team projects, presentations, and interviews).

1. Listen by critically evaluating content in a wide variety of situations (e.g. lectures, presentations, small groups, and one-on-one discourse).
2. Interpret a speaker's message; identify the position taken and the evidence in support of that position.
3. Use a variety of strategies to enhance listening comprehension (e.g., focus attention on message, monitor message for clarity and understanding, provide and recognize verbal and nonverbal cues to ensure one's message is communicated, note cues such as change of pace or words that indicate a new point is about to be made, and select and organize key information).
4. Listen actively and effectively in a variety of communication situations.
5. Analyze and evaluate the effectiveness of an informal and formal presentation.

Subarea I.6 – Listening and Speaking (cont.)

O*NET Detailed Work Activity	Industry Examples
Receive information or instructions for performing work assignments.	**Industry: Advanced Manufacturing** **Position: Machine Operator** **Example:** Listens to shift start-up meeting for full instructions on today's production orders. Asks questions about orders coming in. Receives information from other departments and/or delivers communication to other departments in regard to orders and line status.
Communicate with clients about products, procedures, and policies.	**Industry: Construction and Extraction** **Position: Installer/Technician** **Example:** Listens to the customer to help determine customer's comfort needs. Understands instructions from supervisors and management team.
Answer patient call signals, signal lights, bells, or intercom systems to determine patients' needs.	**Industry: Healthcare Sciences** **Position: Patient Care Technicians** **Example:** Hears what a patient says when they describe that they are in pain or suffering (is it a request they are making?).
Confer with customers or users to assess problems.	**Industry: Transportation, Distribution, Logistics** **Position: Sales Representative, Vendor, Clerk, Procurement Group** **Example:** Listens to the customer and understands their needs to ensure that service expectations are met.

Subarea I.6 – Listening and Speaking (cont.)

B. Speaking. Understand the elements of communication in group discussions and formal presentations (e.g., accuracy, relevance, rhetorical features, and organization of information).

1. Participate actively and effectively in one-on-one and group communication situations.
2. Adjust presentation (e.g., delivery, vocabulary, and length) for specific audiences and purposes (e.g., to defend a position, to entertain, to inform, or to persuade).
3. Deliver focused, coherent presentations that convey clear, distinct perspectives and demonstrate rationale.

O*NET Detailed Work Activity	Industry Examples
Notify others of emergencies, problems, or hazards.	**Industry: Advanced Manufacturing** **Position: Machine Operator** **Example:** Communicates safety concerns. Communicates to Supervisor when issues arise on the line.
Explain regulations, policies, or procedures.	**Industry: Advanced Manufacturing** **Position: First Line Supervisor, Laborers** **Example:** Conducts employee training in equipment operations or work and safety procedures, or assigns employee training to experienced workers.
Communicate with clients about products, procedures, and policies.	**Industry: Construction and Extraction** **Position: HVAC Technician** **Example:** Relays to customer how repairs were made. Explains to a customer what is needed in order make equipment operational.

Subarea I.6 – Listening and Speaking (cont.)

O*NET Detailed Work Activity	Industry Examples
Explain technical medical information to patients.	**Industry: Healthcare Sciences** **Position: Technician** **Example:** Clearly communicates what is going on to patients, families, nurses, and physicians. Utilizes approaches which provide a clear framework for communication that will help them convey what's needed clearly and concisely.
Communicate project information to others.	**Industry: Transportation, Distribution, Logistics** **Position: Supervisors, Warehouse Managers, Systems Clerks** **Example:** Directs workers in transportation or related services, such as pumping, moving, storing, or loading and unloading of materials or people.

Subarea I.6 – Listening and Speaking (cont.)

C. Teamwork. Work collaboratively and communicate effectively with others.

1. Understand and apply knowledge of team dynamics as well as expectations to participate and listen actively and effectively in team discussions and projects in either academic or workplace settings.
2. Consider arguments and conclusions from one's own perspective and from the perspectives of other team members.
3. Understand and apply rhetorical strategies to construct well-reasoned arguments to explain phenomena, validate conjectures, and support positions.
4. Gather evidence systematically to support arguments, findings, and lines of reasoning as determined by team effort to solve a problem.
5. Analyze, evaluate, and as needed, adjust team efforts to achieve individual and group goals.

O*NET Detailed Work Activity	Industry Examples
Collaborate with others to determine production details	**Industry: Advanced Manufacturing** **Position: Machine Operator** **Example:** Adapts to production changes and needs within scheduled shift. Communicates changes to line operators on team.
Confers with managerial or technical personnel, other departments, or contractors to resolve problems or to coordinate activities.	**Industry: Advanced Manufacturing** **Position: Material/Distribution Planners** **Example:** Demonstrates the ability to work as part of a tight-knit and competent group of people to achieve common objectives. Collaborates with teams from other departments or divisions to solve problems.
Communicate with other construction or extraction personnel to discuss project details.	**Industry: Construction and Extraction** **Position: Service Unit Operator – Oil, Mining, Gas** **Example:** Confers with others to gather information regarding pipe, or tool sizes, or borehole conditions in wells.

Subarea I.6 – Listening and Speaking (cont.)

O*NET Detailed Work Activity	Industry Examples
Provides counsel, comfort, or encouragement to individuals and families.	**Industry: Healthcare Sciences** **Position: Patient Care Technician** **Example:** Collaborates with pharmacy, nurse, rehab, and other disciplines to ensure that the patient gets to appointments in radiology, laboratory, physical therapy, etc.
Collaborate with other professionals to assess customer needs.	**Industry: Transportation, Distribution, Logistics** **Position: Router/Delivery Planner, Frontline Supervisors** **Example:** Collaborates with sales representatives to solve delivery issues (e.g.—a late order) and provide best solutions for the customer.

MATH

Mathematics Content Standards

TEXAS WORKFORCE COMMISSION

Math

Introduction – Mathematics Content Standards and Benchmarks

Knowledge and use of mathematics are essential to function successfully in today's society. Due to advances in technology, the knowledge and skill demands of jobs are continually evolving. Mathematical knowledge is needed across a variety of industries, not only for advanced positions, but also for many entry-level jobs. Entry into these fields now requires a higher level of knowledge and skills than in prior generations. As mathematics continues to play a more integral role in our lives, it should no longer be considered a stand-alone content area consisting of individual courses and skills. Rather, mathematics should be presented and taught so that students may be successful problem solvers and use mathematics in daily life. Additionally, knowledge and skills in mathematics are necessary for successful participation in postsecondary education, training programs, and the workplace.

Standards 2.0 addresses procedural fluency and mathematical concepts that are intended to be connected through process skills across each subarea. The process skills standards describe ways in which students are expected to engage with the content. The process skills weave the other knowledge and skills together so that students may be successful problem solvers and use mathematics efficiently and effectively.

The organization of the Mathematics Content Area follows the same structure as the other two content areas. There are eight subareas, each followed by specific content standards, benchmarks, detailed work activities from O*NET, and examples of industry-specific applications of the standards.

The content standards draw from both the *Texas College and Career Readiness Standards* and the *Texas Essential Knowledge and Skills (TEKS)* and are informed by the *Texas Success Initiative Assessment (TSIA)*, the Texas Certificate of High School Equivalency, and other relevant standards, assessment programs, and guiding documents. The work group, project staff, and consulting subject matter experts also examined the *College and Career Readiness Standards for Adult Education, the TEKS for Kindergarten–Algebra I Vertical Alignment Chart, the Texas Response to Curriculum Focal Points for Kindergarten Through Grade 8 Mathematics (Revised, 2013), and the National Council of Teachers of Mathematics Principles and Standards for School Mathematics.*

Standards 2.0 also contains examples of how math skills are applied on the job. These examples are aligned to the standards and benchmarks by means of O*NET detailed work activities. The job-specific examples have been supplied either by employers in their respective industry sectors or by the selection of relevant O*NET task activities.

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Math and Critical Thinking and Communication Skills

It is important to highlight the role of critical thinking and communication skills as they relate to mathematics. Both areas are identified in the O*NET research as essential elements across the four industry sectors. The skill of critical thinking is typically associated with any problem-solving activity. It also may be called for in the application of technology.

This correlation between critical thinking and communication skills involves:

- Using a problem-solving model that incorporates analysis of given information along with relevant data to formulate a plan or strategy for determining a solution;
- Communicating both orally and in writing mathematical concepts and reasoning and their associated implications, using multiple representations; and
- Developing, displaying, explaining, and justifying mathematical concepts and logical arguments using precise mathematical language in written and oral communication.

Subarea II.0 – General Mathematical Processes

Subarea Standard:

A. Integrate the following mathematical processes through all mathematical content.

1. Apply appropriate mathematics to problems arising in everyday life, society, and the workplace.
2. Use a problem-solving model that incorporates analysis of given information along with relevant data to formulate a plan or strategy for determining a solution, justifying the solution, and evaluating the reasonableness of the solution and the problem-solving process used.
3. Select tools (including real objects, manipulatives, and paper and pencil) and appropriate technology (such as software and graphing calculators) to solve problems.
4. Apply cognitive strategies (such as mental math, estimation, and number sense) to solve problems that include rational numbers and the four basic operations (addition, subtraction, multiplication, and division).
5. Communicate both orally and in writing mathematical concepts and reasoning and their associated implications, using multiple representations (including appropriate symbols, diagrams, charts, graphs, and language).
6. Analyze mathematical relationships to connect and communicate mathematical concepts.
7. Develop, display, explain, and justify mathematical concepts and logical arguments using precise mathematical language in written and oral communication.

Subarea II.1 – Numerical Representations and Relationships

Subarea Standards:

A. Recognizing Numbers and Counting. Develop an understanding of place value.

1. Count and represent quantities accurately, efficiently, and fluently.
2. Develop and apply an understanding of the base-10 place value system, and place value concepts using pictorial models, such as number lines and graphs.
3. Compare and order quantities accurately, efficiently, and fluently.

O*NET Detailed Work Activity	O*NET Detailed Work Activity
Inventory medical supplies or equipment.	**Industry: Healthcare Sciences** **Position: Surgical Technician** **Example:** Counts surgical tools (i.e., counting before surgery and after surgery to ensure the same number of tools are available).
Inspect shipments to ensure correct order fulfillment.	**Industry: Transportation, Distribution, Logistics** **Position: Material Handler** **Example:** Counts how many units need to be picked and put on a pallet for selection.

Subarea II.1 – Numerical Representations and Relationships (cont.)

B. Apply knowledge of two-dimensional and three-dimensional shapes, including exploration of early fraction concepts.

1. Use attributes to compose and decompose two-dimensional shapes and three-dimensional solids.
2. Separate objects into equal parts to represent a fraction.
3. Demonstrate an understanding of equivalent fractions by representing a fraction in two ways of a uniform whole using objects or pictorial model such as 2/3 represented as 2/3 and 4/6.
4. Equate fractions and decimals.

O*NET Detailed Work Activity	Industry Examples
Calculate dimensions of work pieces, products, or equipment.	**Industry: Advanced Manufacturing** **Position: Computer Numerical Control (CNC) Operator** **Example:** Uses basic math, converts fraction to decimals, and applies trigonometry, geometry, metrics.
Measure distances or dimensions.	**Industry: Transportation, Distribution, Logistics** **Position: Bus Truck Mechanic** **Example:** Inspects and verifies dimensions and clearances of parts to ensure conformance to factory specifications.
Measure the physical or physiological attributes of patients.	**Industry: Healthcare Sciences** **Position: Licensed Vocational Nurse** **Example:** Measures and records patients' vital signs, such as height, weight, temperature, blood pressure, or respiration.

Subarea II.2 – Computations

Subarea Standards:

A. Adding and Subtracting Whole Numbers. Understand and apply place value and properties of operations to solve problems involving addition and subtraction of whole numbers.

1. Identify situations in which addition and subtraction are necessary to solve problems.
2. Use efficient, accurate, and generalizable methods based on the application of the principles of place value, the properties of operations, and the relationship between addition and subtraction to solve problems involving addition and subtraction of whole numbers.
3. Solve multi-step problems involving addition and subtraction with whole numbers that include equations with a letter standing for the unknown quantity.

O*NET Detailed Work Activity	Industry Examples
Calculate costs of goods or services.	**Industry: Advanced Manufacturing** **Positions: Material Planners, Cycle Counters, Production Planners** **Example:** Calculates required amounts of labor materials, manufacturing costs, or wages using pricing schedules, adding machines, calculators, or computers.
Calculate dimensions of work pieces, products, or equipment.	**Industry: Construction and Extraction** **Position: Welder** **Example:** Uses tape measure, welding protractor, and formulas to determine area and materials needed to build a project in square feet and/or cubic feet.

Subarea II.2 – Computations (cont.)

B. Multiplying Whole Numbers. Develop accuracy, efficiency, and flexibility in the use of mathematical operations (addition, subtraction, and multiplication) with whole numbers, and use this knowledge to solve problems.

1. Add, subtract, and multiply whole numbers accurately, efficiently, and fluently, and justify these procedures. Use these operations to solve problems, including using formulas for perimeter and area.

O*NET Detailed Work Activity	Industry Examples
Measure dimensions of completed products or work pieces to verify conformance to specifications.	**Industry: Advanced Manufacturing** **Positions: Warehouse Receiving/Shipping Clerk, Cycle Counters, Parts Pickers** **Example:** Calculates square feet for raw material inventory (i.e., Length X Width calculations).

C. Dividing Numbers. Use operations with positive rational numbers to solve problems.

1. Develop procedures for addition, subtraction, multiplication, and division of real numbers, including rational and irrational numbers, to solve real-world problems.
2. Relate multiplication and division as inverse operations.
3. Evaluate rational expressions by substituting whole numbers and decimals for unknown quantities.

O*NET Detailed Work Activity	Industry Examples
Calculate costs of goods or services.	**Industry: Transportation, Distribution, Logistics** **Position: Customer Service Representative** **Example:** Resolves customers' billing complaints by performing activities such as refunding money or adjusting bills.

Subarea II.2 – Computations (cont.)

D. Performing a Variety of Operations with Rational Numbers.

1. Accurately, efficiently, and fluently add, subtract, multiply, and divide rational numbers using the order of operations to solve problems in a variety of real-world contexts.

O*NET Detailed Work Activity	Industry Examples
Calculate specific material, equipment, or labor requirements for production.	**Industry: Transportation, Distribution, Logistics** **Position: Customer Service Representative (CSR)** **Example:** Calculates the gross margin of products to determine the sales price (e.g.--product cost of $12.50 plus gross margin of 10% equals sales price of $13.75).

Subarea II.2 – Computations (cont.)

E. Determining and Simplifying Numeric and Algebraic Expressions. Understand and generate expressions and equations to solve problems.

1. Demonstrate comprehension of the relationship between multiplication and division and use of the order of operations in solving problems with rational numbers.
2. Use or generate expressions and equations to solve problems involving the four mathematical operations (addition, subtraction, multiplication, and division).

O*NET Detailed Work Activity	Industry Examples
Analyze financial information.	**Industry: Healthcare Sciences** **Position: Patient Access Representative** **Example:** Determines and accepts required payments, including co-pays and deductibles.
Calculate shipping costs.	**Industry: Transportation, Distribution, Logistics** **Position: Shipping Receiving Clerk** **Example:** Computes amounts of space available and shipping or storage charges using computer or price list.

Subarea II.2 – Computations (cont.)

F. Build foundations and develop an understanding of addition, subtraction, multiplication, and division of fractions and decimals, and perform these operations accurately, efficiently, and fluently.

1. Recognize that equivalent fractions can have different denominators.
2. Apply understanding of representations of equivalent fractions (with like and unlike denominators) when using multiplication and division operations.
3. Demonstrate understanding of addition and subtraction to include adding and subtracting fractions and decimals.
4. Make reasonable estimates of fraction and decimal sums and differences using the four basic mathematical operations to solve real-world problems.
5. Apply an understanding of multiplication and division to fractions and decimals.

O*NET Detailed Work Activity	Industry Examples
Measure materials or objects for installation or assembly.	**Industry: Construction and Extraction** **Position: Carpenter** **Example:** Measures and marks cutting lines on materials, using a ruler, pencil, chalk, and marking gauge; uses conversion tables to translate fractions into decimals.
Estimate construction project cost.	**Industry: Construction and Extraction** **Position: Electrician** **Example:** Calculates conduit fill. Determines the square inches of conductors being installed to determine appropriate size of conduit.
Analyze laboratory findings.	**Industry: Health Care Sciences** **Position: Laboratory Technician** **Example:** Analyzes test results to ensure conformity to specifications, using special mechanical or electrical devices.

Subarea II.2 – Computations (cont.)

O*NET Detailed Work Activity	Industry Examples
Calculate specific material, equipment, or labor requirements for production.	**Industry: Transportation, Distribution, Logistics** **Position: Supervisor** **Example:** Reconciles key metrics to report throughput (i.e.--the amount of raw material processed within a given period of time) (e.g.--cases per hour).

Subarea II.3 – Geometry

Subarea Standards:

A. Identify, analyze, and use attributes of two-dimensional shapes and three-dimensional solids.

1. Identify, name, and create basic two-dimensional shapes and three-dimensional solids, and identify the attributes of each shape.
2. Use attributes to identify, classify, and sort components of two-dimensional shapes and three-dimensional solids, including measurable attributes.
3. Compose and decompose two-dimensional shapes and three-dimensional solids.
4. Construct and use drawings, models, and coordinate representations of plane and space figures in order to solve problems with and without technology.

O*NET Detailed Work Activity	Industry Examples
Assemble temporary equipment or structures.	**Industry: Construction and Extraction** **Position: Roofer** **Example:** Sets up scaffolding to provide safe access to roofs.
Stack cargo in using pallets or cargo boards	**Industry: Transportation, Distribution, Logistics** **Position: Loader** **Example:** Uses geometry and basic math – including dimensions and percentage of packing components – to load a trailer.

Subarea II.3 – Geometry (cont.)

B. Use right triangle relationships, including the Pythagorean Theorem, to describe relationships.

1. Select and use expressions and equations to represent and solve geometric problems involving rational numbers.
2. Use geometric concepts, including the Pythagorean Theorem, to solve problems.
3. Construct and use drawings, models, and coordinate representations of plane and space figures in order to solve problems with and without technology.

O*NET Detailed Work Activity	Industry Examples
Mark reference points on construction materials.	**Industry: Construction and Extraction** **Position: Construction Carpenter** **Example:** Measures and marks cutting lines on materials using a ruler, pencil, chalk, and marking gauge.
Compare physical characteristics of materials or products to specifications or standards.	**Industry: Construction and Extraction** **Position: Construction Carpenter** **Example:** Uses the 3-4-5 rule (Pythagorean Theorem) to lay out or check right angles using a tape measure.

Subarea II.3 – Geometry (cont.)

C. Represent, apply, and analyze proportional relationships by graphing on the coordinate plane.

1. Use knowledge of proportions to draw representations on a coordinate plane (such as the slope of a line) and solve real-life applications.
2. Compare and contrast proportional and non-proportional relationships.

O*NET Detailed Work Activity	Industry Examples
Measure materials to mark reference points, cutting lines, or other indicators.	**Industry: Advanced Manufacturing** **Position: Sheet Metal Worker** **Example:** Lays out, measures, and marks dimensions and reference lines on material such as roofing panels using calculators, scribes, dividers, squares, or rulers.

Subarea II.4 – Measurement Including Geometry

Subarea Standards:

A. Understand units of measure and utilize measurement tools (i.e., tape measure).

1. Demonstrate ability to convert between different units of measure, such as standard to the metric system.

O*NET Detailed Work Activity	Industry Examples
Review blueprints, charts, tables or graphs to determine work requirements.	**Industry: Construction and Extraction** **Position: Construction Laborer** **Example:** Measures openings or distances to lay out areas where work will be performed.
Disassemble equipment for maintenance or repair.	**Industry: Transportation, Distribution, Logistics** **Position: Maintenance and Repair Workers, General** **Example:** Converts between metric and standard tools during routine repairs of machinery.

Subarea II.4 – Measurement Including Geometry (cont.)

B. Measuring length, area, volume, and weight/mass in different measuring systems.

1. Identify length as an attribute that can be measured. List and use appropriate units to solve real-world problems related to length.
2. Identify area as an attribute that can be measured. List and use appropriate units to solve real-world problems related to area.
3. Identify volume as an attribute that can be measured. List and use appropriate units to solve real-world problems related to volume.
4. Identify weight and mass as attributes that can be measured. List and use appropriate units to solve real-world problems related to weight/mass.
5. When given the area or perimeter, use the appropriate formulas to calculate the missing side dimensions of triangles, rectangles, and other polygons.
6. Understand units of measure and utilize measurement tools, such as a tape measure.
7. Apply estimation in measuring, and use tools (e.g., rulers, tape measures, real objects, manipulatives, paper and pencil) and technology as appropriate.

O*NET Detailed Work Activity	Industry Examples
Measure ingredients or substances to be used in production processes.	**Industry: Advanced Manufacturing** **Position: Quality Assurance Technician** **Example:** Calculates weights of products and pressure on valves. Performs equipment calibrations.
Measure materials or objects for installation or assembly.	**Industry: Construction Extraction** **Position: Derrick Operator, Oil and Gas** **Example:** Weighs clay and mix with water and chemicals to make drilling mud using portable mixers.
Align equipment or machinery.	**Industry: Construction and Extraction** **Position: Millwright** **Example:** Inserts shims, adjusts tension on nuts and bolts or positions parts, using hand tools and measuring instruments to set specified clearances between moving and stationary parts.

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Subarea II.4 – Measurement Including Geometry (cont.)

C. Represent and solve problems with perimeter, area, and volume.

1. Apply understanding of measurement to select appropriate units when measuring perimeter, area, and volume in real-world contexts.
2. Use a variety of representations to build connections between the stated formulas and the direct measurement of perimeter, area, and volume.
3. Solve real-world mathematical problems involving surface area and volume of three-dimensional shapes such as right prisms, pyramids, cylinders, spheres, cones, and composite figures.

O*NET Detailed Work Activity	Industry Examples
Plan layout of construction, installation, or repairs.	**Industry: Advanced Manufacturing** **Position: Sheet Metal Worker** **Example:** Develops or lays out patterns using computerized metalworking equipment.
Interpret blueprints, specifications, or diagrams to inform installation, development, or operation activities.	**Industry: Construction and Extraction** **Position: HVAC Technician** **Example:** Performs simple to complex math equations for load calculations and HVAC system design. Understands percentages in relationship to equipment selection and unit charging procedures.

Subarea II.4 – Measurement Including Geometry (cont.)

D. Describe characteristics of 2-D and 3-D geometric figures, including measurable attributes.

1. Use attributes to sort, classify, and measure two- and three-dimensional figures.
2. Use the decomposition of rectangles into rows of squares to determine that area can be found through multiplication.

O*NET Detailed Work Activity	Industry Examples
Calculate dimensions of workpieces, products, or equipment.	**Industry: Construction and Extraction** **Position: Pipefitter** **Example:** Finds the volume of a pipe section to measure and mark pipes for cutting or threading by reading graphs, tables, or charts using knowledge of spatial relationships.

Subarea II.4 – Measurement Including Geometry (cont.)

E. Measuring Angles and Using Angle Relationships.

1. Measure an angle.
2. Recognize, identify, describe, and reason about intersecting and parallel lines and the associated angles in two dimensions.
3. Analyze and use spatial relationships and basic concepts of geometry to construct, draw, describe, and compare geometric models and their transformations. Use geometric relations and patterns to solve real-world problems.

O*NET Detailed Work Activity	Industry Examples
Lay out work according to specifications.	**Industry: Advanced Manufacturing** **Position: Maintenance Mechanic** **Example:** Plans and lays out repair work, uses diagrams, drawings, blueprints, maintenance manuals, or schematic diagrams.
Calculate requirements for equipment installation or repair projects.	**Industry: Construction and Extraction** **Position: Brick Mason** **Example:** Measures distance from reference points and marks guidelines to lay out work using plumb bobs and levels.

Subarea II.4 – Measurement Including Geometry (cont.)

F. Use relationships between measures to analyze rates of change.

1. Interpret, calculate, and apply rates including those involving time, such as velocity (e.g., mi/hr, ft/sec, and m/sec), frequency (e.g., calls/hr), consumption (e.g., cal/day and kw/hr), flow (e.g., gal/min), and change (e.g., degrees/min and inches/year).

O*NET Detailed Work Activity	Industry Examples
Mix substances or compounds needed for work activities.	**Industry: Construction and Extraction** **Position: Derrick Operator** **Example:** Controls the viscosity and weight of drilling fluid.
Choose optimal transportation routes or speeds.	**Industry: Transportation, Distribution, Logistics** **Position: Heavy Tractor Trailer Driver** **Example:** Plans or adjusts routes based on changing conditions. Uses computer equipment, global positioning systems (GPS) equipment, or other navigation devices to minimize fuel consumption and carbon emissions.

Subarea II.5 – Algebraic Relationships

Subarea Standards:

A. Represent and use algebra to solve problems for the unknown.

1. Identify Properties of Real Numbers for addition, subtraction, multiplication, division, and exponents.
2. Use mathematical symbols to represent linear relationships and formulas.
3. Use words, tables, and graphs as well as algebraic expressions and equations to model the mathematical relationships (particularly functional relationships) found in real-world problems.
4. Simplify expressions.
5. Solve one-step linear equations using addition, subtraction, multiplication, and division properties of equality including proportions.
6. Solve two- and three-step linear equations.
7. Solve linear equations involving fractions and decimals by clearing them from the problem.
8. Solve application problems involving linear equations to include percent, interest, sales and sales tax, distance, and geometrical problems.
9. Solve systems of equations in real-world applications.
10. Solve application problems involving systems of equations.
11. Solve and graph absolute value equations.

O*NET Detailed Work Activity	Industry Examples
Estimate construction project costs.	**Industry: Construction and Extraction** **Position: Supervisor** **Example:** Finds the cost of materials needed based on price per linear foot, the dimensions provided in a floor plan, and applying supplier discount.
Process medical billing information.	**Industry: Healthcare Sciences** **Position: Admissions Clerk** **Example:** Keeps financial records or performs other bookkeeping duties such as handling credit, collections, or mailing monthly statements to patients.

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Subarea II.5 – Algebraic Relationships (cont.)

O*NET Detailed Work Activity	Industry Examples
Calculate specific material, equipment, or labor requirements for production.	**Industry: Transportation, Distribution, Logistics** **Position: Billing Cost Rate Clerk** **Example:** Tracks accumulated hours and dollar amounts charged for professional services such as legal or accounting services to calculate client fees.

B. Linear Inequalities

1. Solve linear inequalities in one variable using the addition, subtraction, multiplication, and division properties.
2. Graph linear inequalities on a number line.
3. Solve and graph compound inequalities on a number line.
4. Use set builder notation and interval notation with linear inequalities.
5. Solve and graph absolute value inequalities.

C. Graphing

1. Select and use expressions and equations to represent and solve problems involving rational numbers.
2. Use properties of addition, subtraction, multiplication, and division with radicals.
3. Understand and use a rectangular coordinate system to interpret a graph, plot points, and determine coordinates of points from a graph.
4. Graph linear functions by plotting points, including vertical and horizontal lines.
5. Understand and use x- and y-intercepts to graph a linear function.
6. Identify and calculate the slope of a line from both a graph and given coordinates, including vertical and horizontal functions.
7. Determine if two lines are parallel or perpendicular.
8. Write linear functions with information given for slope and a point on a line.
9. Graph linear inequalities in two dimensions.
10. Graph systems of linear functions.
11. Use linear equations and inequalities to model or solve problems using real-world data.
12. Solve linear functions, with and without technology, and evaluate the reasonableness of their solutions.

Subarea II.5 – Algebraic Relationships (cont.)

O*NET Detailed Work Activity	Industry Examples
Create graphical representations of industrial production systems.	**Industry: Advanced Manufacturing** **Position: Robotics Technician** **Example:** Develops robotic path motions to maximize efficiency, safety, and quality.
Create graphical representations of industrial production systems.	**Industry: Transportation, Distribution, Logistics** **Position: Industrial Engineering Technician** **Example:** Prepares charts, graphs, or diagrams to illustrate workflow, routing, floor layouts, material handling, or machine utilization.

D. Use numeric and algebraic methods.

1. Identify functions using sets of ordered pairs, tables, mappings, and graphs, including using the vertical line test.
2. Solve Quadratic equations using the Quadratic Formula.
3. Apply algebraic methods to define, solve, analyze, split into parts, and evaluate equations, relations, and functions, including finding the domain and range.
4. Solve Quadratic equations using the Quadratic Formula.

Subarea II.5 – Algebraic Relationships (cont.)

E. Understand and apply ratios and rates by using equivalent ratios to represent percentages and proportional relationships.

1. Use knowledge of fractions to develop procedures for modeling and solving real-world ratio and rate problems.
2. Extend knowledge of equivalent fractions to create equivalent ratios that describe real-world situations that involve proportionality
3. Use various representations (e.g., graphs, tables, and equations) to solve real-world problems, involving proportional relationships
4. Use knowledge of both direct and inverse variations to solve real-world problems.
5. Use reasoning to solve real-world problems, including proportions, and percentages (e.g., simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, and percent error).

O*NET Detailed Work Activity	Industry Examples
Analyze financial information.	**Industry: Healthcare Sciences** **Position: Patient Access Representative** **Example:** Analyzes patients' abilities to pay to determine charges on a sliding scale.
Process medical billing information.	**Industry: Healthcare Sciences** **Position: Pharmacy Technician** **Example:** Computes charges for medication or equipment dispensed to hospital patients and enters data in computer.

F. Polynomials and properties of exponents.

1. Use properties of exponents to simplify expressions.
2. Use the properties of addition, subtraction, multiplication, and division to simplify polynomials.
3. Use various representations (e.g., graphs, tables, and equations) to solve real-world problems involving polynomial relationships.

Subarea II.6 – Non-Linear Equations, Functions, and Inequalities

Subarea Standards:

A. Use Quadratic Functions and Equations.

1. Factor polynomials by identifying the greatest common factor.
2. Factor polynomials, including the use of grouping, trial and error method, difference of squares and sum, and difference of two cubes.
3. Solve quadratic equations, with and without technology, by using the zero-product rule, including applications to model situations, solve problems, and make predictions.

B. Rational Expressions

1. Use properties of addition, subtraction, multiplication, and division to simplify rational expressions.
2. Solve rational equations.
3. Use properties of rational equations to solve real-world problems.
4. Select and justify appropriate symbolic representations to solve problems in varied contexts, including use of geometric formulas for triangles and pyramids as well as the equation of a circle.
5. Write a representative quadratic equation based on a graph or other given attributes.

O*NET Detailed Work Activity	Industry Examples
Weigh materials to ensure compliance with specifications.	**Industry: Advanced Manufacturing** **Position: Inspector Tester Weigher** **Example:** Records inspection or test data such as weights, temperatures, grades, or moisture content, and quantities inspected or graded.
Assess physical conditions of patients to aid in diagnosis or treatment.	**Industry: Healthcare Sciences** **Position: Physical Therapist** **Example:** Measures patients' range-of-joint motion, body parts, or vital signs to determine effects of treatments or for patient evaluations.

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Subarea II.6 – Non-Linear Equations, Functions, and Inequalities (cont.)

C. Radicals

1. Apply properties of radicals to simplify radical exponents and expressions.
2. Use properties of addition, subtraction, multiplication, and division with radicals.
3. Solve radical equations involving one radical.
4. Solve radical equations involving more than one radical.
5. Use properties of complex numbers to simplify expressions.

D. Use quadratic and square-root functions, equations, and inequalities.

1. Solve quadratic equations using completing-the-square and square-root property.
2. Solve quadratic equations using the quadratic formula.
3. Apply quadratic and square-root equations and quadratic inequalities to model situations, solve problems, and make predictions.
4. Understand that quadratic and square-root equations and quadratic inequalities can be used to model situations, solve problems, and make predictions.

E. Use cubic, cube root, absolute value, and rational functions, equations, and inequalities.

1. Use cubic, cube root, absolute value, and rational functions, equations, and inequalities to model situations, solve problems, and make predictions.
2. Perform computations and write numerical expressions with cubes and cube roots of non-zero rational numbers.

F. Use exponential functions and equations.

1. Use the properties of exponential functions and their related transformations to represent exponential functions graphically, in a table, and as equation—with and without technology.
2. Use exponential functions to model or solve problems using real-world data. Evaluate the reasonableness of the solutions, with and without technology.

Subarea II.7 – Data Analysis

Subarea Standards:

A. Organizing, Representing, and Interpreting Sets of Data. Select and apply appropriate visual representations of data.

1. Organize and construct graphical displays of data (e.g., line plots, bar graphs, histograms, box plots, scatter plots, and coordinate planes) to describe data based on the attributes of a given data set.

O*NET Detailed Work Activity	Industry Examples
Adjust temperature controls of ovens or other heating equipment.	**Industry: Advanced Manufacturing** **Position: Operator** **Example:** Uses and applies percentages, speed per inch, conversions for Fahrenheit to centigrade degrees, ramp rate (up & down), and calibration measurements.

Subarea II.7 – Data Analysis (cont.)

B. Read, analyze, interpret, and draw conclusions from data.

1. Understand the relevance and importance of reliable data sampling techniques to ensure more accurate statistical results.
2. Use and understand the meaning of representative and non-representative samples.
3. Understand and use descriptions of center, spread, and shape to summarize and compare data sets.
4. Make predictions and draw inferences using summary statistics.
5. Analyze data sets using graphs and summary statistics.
6. Analyze relationships between paired data using spreadsheets, graphing calculators, or software.

O*NET Detailed Work Activity	Industry Examples
Weigh materials to ensure compliance with specifications	**Industry: Advanced Manufacturing** **Position: Inspector Tester Weigher** **Example:** Records inspection or test data such as weights, temperatures, grades, or moisture content, and quantities inspected or graded.
Assess physical conditions of patients to aid in diagnosis or treatment.	**Industry: Healthcare Sciences** **Position: Physical Therapist** **Example:** Measures patients' range-of-joint motion, body parts, or vital signs to determine effects of treatments or for patient evaluations.

Subarea II.7 – Data Analysis (cont.)

C. Determine and use probability to solve problems.

1. Understand probability in real-world situations.
2. Understand the influence of independence and dependence of events and variables.

O*NET Detailed Work Activity	Industry Examples
Coordinate shipping activities with external parties.	**Industry: Transportation, Distribution, Logistics** **Position: Production Planning Expediting Clerk** **Example:** Revises production schedules when required due to design changes, labor or material shortages, backlogs, or other interruptions.

Subarea II.8 – Financial Literacy

Subarea Standards:

A. Understand the Connections Among Income, Expenses, and Careers.

1. Research and analyze college and career opportunities.
2. Understand skills needed for a specific career and income potential of different types of jobs and careers.
3. Understand taxes (e.g., income, sales, property, etc.).
4. Understand fixed and variable expenses and how to develop your personal budget.

Relevant Life Skill	Industry Examples
Estimate market value of products or services.	Uses the U.S. Department of Labor's Occupational Information Network (O*NET): • to research specific occupations in an industry that matches career interest areas; • to identify related knowledge, skills, and abilities, level of education and certifications required; and • to gain perspective on wages associated with different occupations by education and labor market factors across the state of Texas and nationally.

Subarea II.8 – Financial Literacy (cont.)

B. Develop and use an economic way of thinking and problem solving useful in one's life as a knowledgeable employee, consumer, provider, and investor.

1. Apply critical thinking skills to analyze the costs and benefits of personal financial decisions, including assumption of large amounts of debt.
2. Understand how to provide for basic needs while living and working within a budget.
3. Compare and understand the various financial-aid methods available for college and other postsecondary education and training.
4. Develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer, employee, and investor.
5. Understand the role of financial markets/institutions in saving, borrowing, and capital formation
6. Understand the role of individuals in financial markets as well as banking and credit systems.
7. Calculate and compare simple interest and compound interest as it applies to saving, borrowing, and lines of credit.
8. Navigate and use banking, credit, and financial markets in saving, borrowing, and capital formation.

Relevant Life Skill	Examples
Estimate market value of products or services.	**Return on Investment (ROI):** ROI is an economic way of thinking and problem solving that can be used to determine how much an additional investment in further training, certification, or education will add to wage-earning potential over time. Key to decision-making using ROI is knowing the anticipated costs associated with education or training/ certification and the benefits in increased wages in different occupations within a career field.
Estimate market value of products or services.	**Opportunity Cost:** This is an economic way of thinking and problem solving in which a person chooses one option, for instance, to pursue further education rather than benefitting from the income he or she could have received from working during the same time period. The cost is the income not received.
Estimate market value of products or services.	**Earned Income Tax Credit:** Potential source of income based on employment, income level, marital status, and number of dependents.

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ESL

English as a Second Language Content Standards

TEXAS WORKFORCE COMMISSION

Introduction – English as a Second Language Content Standards and Benchmarks

Section 203 of WIOA contains specific language requiring programs to align English as a Second Language (ESL) instruction to the demands of high school equivalency, postsecondary education, and workforce training. This requirement has had an immediate impact on ESL instruction in adult education. Past standards and the accompanying assessments focused on basic interpersonal communication skills. The new standards are much more rigorous, leading to proficiency in each of four domains--speaking, listening, reading, and writing--enabling English Language learners to attain a High School Equivalence (HSE) certificate and, most importantly, participate in college level courses and workforce training.

The structure of the ESL Content Standards and Benchmarks is different than the other Content Standards and Benchmarks presented in this document. There are four overarching Content Area Standards for Listening, Speaking, Reading, and Writing and each of these is followed by several Subarea Standards, which further delineate the broader standards. Benchmarks for each standard are organized into six proficiency levels. Detailed work activities for and industry examples, which align to the standards are inserted in a table below the subarea. Note that Benchmarks are aligned to the overarching Content Standard, not to the individual Subarea Standards.

The subject matter experts that developed the ESL Content Standards reviewed research on the English as a Second Language skills that adult education students need to successfully participate in everyday life activities, postsecondary education, training programs, and the workplace. Although the list of informing documents is extensive, many of them should be well known to those who work with English language learners. Included in the review were:

- the American Council on the Teaching of Foreign Languages (ACTFL) Proficiency Guidelines for English;
- English Language Proficiency Standards for Adult Education;
- English Language Proficiency Assessment for the 21st Century (ELPA21) Standards;
- California English as a Second Language Model Standards for Adult Education Programs;
- Canadian Language Benchmarks: English as a Second Language for Adults;
- the Common European Framework of Reference for Languages (CEFR),
- the Global Scale of English (GSE),
- Council of Chief State School Officers (CCSSO) English Language Proficiency (ELP) Standards;
- Teachers of English to Speakers of Other Languages (TESOL) English Language Proficiency Standards Framework;
- the World-Class Instructional Design and Assessment (WIDA) Standards Framework and Theoretical Foundations;
- Texas Adult Education Content Standards; and
- the Comprehensive Adult Student Assessment Systems (CASAS).

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Introduction – English as a Second Language Content Standards and Benchmarks (cont.)

In the second phase of the initiative the ESL standards were reviewed with an industry focus. This effort was informed by experts from four key Texas industries: Healthcare Science, Advanced Manufacturing, Construction and Extraction, and Transportation, Distribution, and Logistics.

Descriptions of detailed work activities for specific occupations from O*Net and the Global Scale of English informed this document. *Standards 2.0* contains multiple examples from the key industry clusters that provide rich content for contextualization of the standards.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

III.1 – Listening Skills

Overarching Content Area Standard:

English Language Learners (ELLs) become increasingly able to comprehend what they hear, to retrieve information, and to make inferences and connections. The ELLs listen to speakers in a variety of contexts with a variety of English accents.

O*NET Elements related to this Standard and its Subarea Standards and Benchmarks:

- Active Listening. Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking. Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- Oral Comprehension. Identify and understand the speech of another person.
- Speaking. Talk to others to convey information effectively.
- Speech Recognition. Identify and understand the speech of another person.

Subarea Standards:

A. Distinguish sounds and intonation patterns of English with increasing ease.

B. Demonstrate understanding when listening to spoken language in different situations and spoken with a variety of regional accents.

Detailed Work Activity	Industry Example
Answer patient call signals, signal lights, bells, or intercom systems to determine patient needs.	**Industry: Healthcare Sciences** **Position: Patient Care Technician, Medical Assistance** **Example:** Assesses physical conditions of patients to aid in diagnosis or treatment.

III.1 – Listening Skills (cont.)

C. Listen to, follow, and give directions and/or instructions.

Detailed Work Activity	Industry Examples
Receive information or instructions for performing work assignments.	**Industry: Multiple Industries** **Position: Multiple Positions** **Example:** Listens to instructions for day-to-day tasks and operations.
Can understand simple requests or instructions to carry out concrete work-related tasks.	**Industry: Construction and Extraction** **Position: Service Unit Operators** **Example:** Follows verbal instructions regarding project requirements, such as scope, assembly sequences, or required methods or materials.
Can understand simple requests or instructions to carry out concrete work-related tasks.	**Industry: Construction and Extraction** **Position: Construction Carpenter** **Example:** Follows established safety rules and regulations and maintains a safe and clean environment.

III.1 – Listening Skills (cont.)

D. Listen to and participate in a variety of settings (e.g., academic, work, and social) and situations (e.g., conversation, teamwork, meetings, presentation, and interviews).

Detailed Work Activity	Industry Examples
Communicate health and wellness information to the public.	**Industry: Healthcare Sciences** **Position: Dietetic Technician** **Example:** Comprehends presentations on diet, nutrition, or health to promote healthy eating habits and illness prevention and treatment.
Confer with other professionals to plan patient care.	**Industry: Healthcare Sciences** **Position: Physical Therapist Aides** **Example:** Confers with physical therapy staff or others to discuss and evaluate patient information for planning, modifying, or coordinating treatment.
Communicate with other personnel to resolve problems.	**Industry: Transportation, Distribution, Logistics** **Position: First-Line Supervisor, Administrative Workers** **Example:** Consults with managers or other personnel to resolve problems in areas such as equipment performance, output quality, or work schedules.

III.1 – Listening Skills (cont.)

E. Participate in and comprehend conversations face-to-face or via electronic media.

Detailed Work Activity	Industry Examples
Discuss problems or issues with supervisors.	**Industry: Advanced Manufacturing** **Position: Machine Operator** **Example:** Listens to shift start-up meeting for full instructions on today's production orders. Asks questions about orders coming in. Receives information from other departments and/or delivers communication to other departments in regard to orders and line status.

F. Comprehend questions in order to engage in conversation.

Detailed Work Activity	Industry Examples
Communicates with clients about products, procedures, and policies.	**Industry: Construction and Extraction** **Position:** Installer/Technician **Example:** Actively listens to the customer to determine customer's comfort needs (e.g.—HVAC installation).

III.1 – Listening Skills (cont.)

G. Use comprehension strategies such as indicating misunderstanding, repeating and rephrasing, or asking for help as appropriate for the communication context.

Detailed Work Activity	Industry Examples
Asks questions and listens to answers to identify health information.	**Industry: Healthcare Sciences** **Position: Psychiatric Aides** **Example:** Interviews patients upon admission and records information.

H. Exhibit knowledge and appropriate interpretation of cultural conventions in conversation, such as the use of titles, eye contact, registers, and expected responses (schemata).

Detailed Work Activity	Industry Examples
Answer patient call signals, signal lights, bells, or intercom systems to determine patients' needs.	**Industry: Healthcare Sciences** **Position: Patient Care Technicians** **Example:** Hears what a patient says when they describe that they are in pain or suffering. Determines if the patient is making a request.

III.1 – Listening Skills (cont.)

BENCHMARKS:

Level 1: Beginning Language Ability. These ELLs are true beginners and can obtain limited meaning from spoken communication. They demonstrate their understanding by using limited responses (e.g., responding with an action such as pointing, drawing, and marking an answer).

1. Respond to spoken commands and show understanding (e.g., nodding and using body language, drawing, and pointing) after listening to brief messages.
2. Listen to spoken language and respond verbally after repeated listening.
3. Listen actively and interpret listening to spoken language utilizing visual props, gestures, and facial expressions to provide a response.
4. Actively listen and respond to conversations about familiar topics and situations (e.g., such as short phone message or simple dialogue between two people).
5. Interpret spoken communication expressed in a few words and in simple sentences.
6. Respond verbally to simple spoken communication in familiar contexts using words, phrases, and simple sentences.
7. Respond with an action (e.g., raise your hand, sit, walk, stop, put pencil down, or look and listen) to basic spoken commands.
8. Respond verbally to yes/no questions, either/or questions, and other types of questions which require simple answers.
9. Use simple language formulas to ask for clarification (e.g., "Repeat please!" "Say that again?" "What do you mean?" "I don't understand," "Please repeat," "Do you agree?").

Level 2: Low Beginning Language Ability. These ELLs respond to questions that require one- or two-word answers, can participate in interactions in familiar contexts, and are able to ask the speaker for repetition.

1. Use verbal communication to respond to moderately complex phrases, interactions, and questions in familiar contexts.
2. Follow orally-presented directions to accomplish a multi-step task.
3. Identify high-frequency words that occur in English texts (e.g., he, she, you, I, ask, is, but, the, have, good).
4. Listen actively, use context and familiar terms, and identify the main topic of a conversation in familiar situations.

III.1 – Listening Skills (cont.)

BENCHMARKS (cont.):

Level 3: High Beginning Language Ability. These ELLs understand the central idea within spoken conversation or oral presentation, but may require context clues, restatement, or paraphrasing of ideas to fully comprehend the spoken message.

1. Comprehend messages while engaged in face-to-face conversations such as simple social exchanges.
2. Comprehend messages in routine listening tasks (e.g., phone interactions, brief messages, announcements over the loud speaker in a store, and simple directions).
3. Identify and begin to understand highly contextualized words and phrases, including aural cognates (words in two languages that share a similar meaning, spelling, and pronunciation) and borrowed words (words from other languages).
4. Listen and respond to spoken language that conveys basic information and contains high-frequency vocabulary.
5. After listening to spoken language (several times), identify more than one phrase and provide an answer to a question or repeat what was heard.

Level 4: Low Intermediate Language Ability. These ELLs apply increasingly complex listening strategies to comprehend conversations that include new vocabulary. Thus, they are able to participate in information gap listening activities.

1. Actively listen, determine new meanings of new vocabulary, and interpret complex spoken communication.
2. Listen to, identify main facts and supporting details, and comprehend messages from mass media communication (e.g., radio, movies, and TV) and other spoken communication.
3. Actively listen and comprehend information and provide a response to a question that requires making inferences from spoken language.
4. Recognize abbreviated phrases, including informal language, slang, and idioms, when listening to a conversation (e.g., Want some?, Like it?, Heard that?).

III.1 – Listening Skills (cont.)

BENCHMARKS (cont.):

Level 5: High Intermediate Language Ability. These ELLs are able to identify main ideas and supportive information and recognize the speaker's hidden messages.

1. Comprehend spoken language that deals with unfamiliar topics or situations.
2. Identify and retell the main facts and supportive details from an oral presentation.
3. Comprehend extended social interactions (e.g., a person telling an anecdote or discussing a social topic).
4. Recognize and respond to routine spoken messages, instructions, or questions (e.g., "Next customer, please!").
5. Identify and respond to descriptions (of people and places), narratives (of past, present, and future events), and argumentative speech, as well as complex factual products of spoken language.
6. Comprehend facts presented in spoken discourse and recognize speaker intended inferences.
7. Take notes during a workshop, lecture, or oral presentation to capture main ideas and supporting details.
8. Use background knowledge and contextual clues to participate in conversations.
9. Can participate in conversations over the telephone or other telecommunication devices.

Level 6: Advanced Language Ability. These ELLs comprehend abstract topics, hidden messages, and conversations that include new vocabulary and new topics. Their vocabulary knowledge is extensive.

1. Listen actively to comprehend and respond to increasingly complex spoken language in a variety of contexts (e.g., news broadcasts, political speeches, and mass media).
2. Identify main ideas and supporting details in spoken language on specialized topics (e.g., news broadcasts or spoken instructions).
3. Comprehend spoken language that uses specialized or technical vocabulary and complex grammatical structures (e.g., multiple verbal tenses, idioms) and that contains cultural references (e.g., TV news, a presidential speech, or a product of pop culture).
4. When listening to spoken language, summarize and take notes.
5. Make inferences about spoken language, evaluating the accuracy and relevance of what is presented.
6. Participate actively in and comprehend conversations in unfamiliar settings (e.g., one's child's school, medical offices, government agencies, and unfamiliar worksites).

Subarea III.2 – Speaking Skills

Overarching Content Area Standard:

The ELLs are able to speak in a variety of situations and settings using increasingly challenging vocabulary and language fluency and accuracy.
O*NET Elements related to this Standard and its Subarea Standards and Benchmarks:

- **Speaking.** Talk to others to convey information effectively.
- **Oral Comprehension.** Identify and understand the speech of another person.
- **Oral Expression.** Communicate information and ideas in speaking so others will understand.

Subarea Standards:
A. Communicate needs verbally using increasingly complex words and phrases.

B. Give directions to places and instructions for accomplishing specific tasks.

Detailed Work Activity	Industry Examples
Communicate with others to coordinate vehicle movement.	**Industry: Transportation, Distribution, Logistics** **Position: Tractor Trailer Driver** **Example:** Gives directions to laborers who are packing goods and moving them into trailers.
Communicate project information to others.	**Industry: Transportation, Distribution, Logistics** **Position: First-Line Supervisor, Transportation** **Example:** Directs workers in transportation or related services such as pumping, moving, storing, or loading or unloading of materials or people.

Subarea III.2 – Speaking Skills (cont.)

C. Demonstrate an increasing range of English vocabulary appropriate for speaking in informal and formal settings.

Detailed Work Activity	Industry Examples
Communicate with other construction or extraction personnel to discuss project details.	**Industry: Construction and Extraction** **Position: Derrick Operator** **Example:** Supervises crew members; provides assistance in training them.
Explain technical medical information to patients.	**Industry: Healthcare Sciences** **Position: Patient Care Assistant** **Example:** Explains policies, procedures, or services to patients using medical or administrative knowledge.

D. Produce spoken communications at each proficiency level that demonstrate increasing language complexity.

Subarea III.2 – Speaking Skills (cont.)

E. Demonstrate appropriate speaking skills and strategies for persuading and discussing.

Detailed Work Activity	Industry Examples
Carry out a work-related conversation using polite fixed expressions.	**Industry: Advanced Manufacturing** **Position: First-Line Supervisor** **Example:** Confers with other supervisors to coordinate operations and activities within or between departments.
Give basic technical instructions in their field of specialization	**Industry: Construction and Extraction** **Position: Plumber** **Example:** Recommends energy or water saving products such as low-flow faucets or shower heads, water-saving toilets, or high-efficiency hot water heaters.
Communicate with clients about products, procedures, and policies.	**Industry: Construction and Extraction** **Position: HVAC Technician** **Example:** Relays to customer how repairs were made. Ability to have customer understand what was needed in order make equipment operational.

Subarea III.2 – Speaking Skills (cont.)

F. Demonstrate appropriate speaking skills and strategies for seeking and relaying information.

Detailed Work Activity	Industry Examples
Confers with managerial or technical personnel, other departments, or contractors to resolve problems or to coordinate activities.	**Industry: Transportation, Distribution, Logistics** **Position: Front-line Supervisor** **Example:** Conducts employee training in equipment operations or work and safety procedures.

G. Demonstrate appropriate speaking skills and strategies for expressing feelings and emotions.

Detailed Work Activity	Industry Examples
Interview patients to gather medical information.	**Industry: Healthcare Sciences** **Position: Nursing Assistant** **Example:** Communicates with patients to determine feelings or need for assistance or social and emotional supports.

H. Demonstrate appropriate speaking skills and strategies for collaborating and solving problems.

Detailed Work Activity	Industry Examples
Respond to customer problems or complaints.	**Industry: Transportation, Distribution, Logistics** **Position: Shipping, Receiving, and Traffic Clerk** **Example:** Confers with client representatives to rectify problems such as damages, shortages, or non-conformance to specifications.

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Subarea III.2 – Speaking Skills (cont.)

I. Construct an oral argument presenting a particular point of view and provide evidence to refute an opposing point of view.

Detailed Work Activity	Industry Examples
Develop plans for programs or services.	**Industry: Healthcare Sciences** **Position: Personal Care Aide** **Example:** Participates in case reviews by communicating with the team. Consults with the team caring for the client in order to evaluate the client's needs and plan for continuing services.

BENCHMARKS:

Level 1: Beginning Language Ability. These ELLS are true beginners; their oral communication depends on gestures, their first language, visual aids, and a small number of English words.

1. Demonstrate mastery of a basic English vocabulary.
2. Use individual words and phrases to communicate verbally (e.g., Look, Go, Stop).
3. Conduct conversations using simple/controlled dialogue lines or formulaic phrases (e.g., "My name is….").
4. Within familiar situations ask simple questions and provide answers verbally using key words, phrases, and questions for clarification.
5. Speak using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words and expressions needed for basic communication in academic and social contexts.
6. Gain increasing awareness of categorization of English vocabulary into different parts of speech such as nouns and verbs.

Subarea III.2 – Speaking Skills (cont.)

BENCHMARKS (cont.):

Level 2: Low Beginning Language Ability. These ELLs can communicate using basic vocabulary and common English expressions to express themselves and engage in conversations.

1. Gain increasing command of common expressions in simple dialogues and social exchanges (e.g., to express feelings or health, to describe weather, or to ask how others are doing).
2. Engage in brief, guided conversation with peers.
3. Use high-frequency words to verbally describe things or people.
4. Convey brief messages (e.g., "I am sick," or "Jose is absent").
5. Gain increasing command of English vocabulary, selecting words that express ideas.

Level 3: High Beginning Language Ability. These ELLs participate in brief original exchanges, including communicating immediate needs through simple conversation.

1. Engage in simple dialogues with others.
2. Actively engage in natural communication exchanges in different settings (e.g., classroom, phone conversations, and social media).
3. Conduct guided conversations using high frequency words, phrasal verbs, and idioms and following grammatical conventions of conversational English.
4. Provide detailed descriptions of places and people.
5. Clarify and elaborate on a message when asked by using different terms and providing descriptions or examples.
6. Expand vocabulary by gaining increasing command of technical and specialized terms.

Level 4: Low Intermediate Language Ability. These ELLs can initiate and engage in simple conversations that include descriptions, personal opinions, and inferences on familiar topics.

1. Engage in simple conversations (e.g., ask about personal information such as name, address, and phone number) using wh-questions.
2. Provide descriptions, arguments, and simple inferences when using spoken language.
3. Provide and defend an opinion to support a point of view on familiar topics or situations.
4. Carry on extensive conversations in a social narrative context (e.g., a description of family-related weekend activities).
5. Speak in ways that clearly communicate the topic, main ideas, and essential ideas.
6. Demonstrate some understanding of the differences between standard and non-standard spoken English vocabulary and grammar.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Subarea III.2 – Speaking Skills (cont.)

BENCHMARKS (cont.):

Level 5: High Intermediate Language Ability. These ELLs comprehend and participate in extended conversation and other verbal exchanges that go beyond personal needs and familiar topics.

1. Comprehend and participate in complex spoken communication.
2. Speak fluently about a variety of familiar topics in low-anxiety situations.
3. Verbally provide a personal opinion, logical argument, or examples about a given situation or topic to support one's responses in debates or conversations.
4. Use complex vocabulary to express opinions and defend a point of view.
5. Switch between standard and non-standard English as the situation warrants (e.g., use colloquial language when appropriate).
6. Convey the emotional content of a spoken message (e.g., anger, compliment, condolence, or sarcasm) through intonation, rhythm, and stress.
7. Become increasingly able to change grammatical style in formal and informal settings by adjusting language used for a particular purpose or in a particular social setting.
8. Gain increasing command of academic and work-related vocabulary.

Level 6: Advanced Language Ability. These ELLs comprehend the main ideas of a speech and can deliver an oral presentation. They are able to converse effectively with fluent English speakers.

1. Present ideas concisely, logically, and persuasively using grammatically correct spoken language.
2. Give an extended discourse on a topic of special interest (e.g., lectures, speeches, and presentations).
3. Demonstrate expanded vocabulary knowledge by delivering a speech/presentation on a specific topic.
4. Converse fluently in English with peers and native speakers.
5. Participate in impromptu conversations on a given topic.
6. Orally convey humor, jokes, sarcasm, innuendo, irony, etc., as situations demand.
7. Orally respond to questions and comments by providing suggestions and alternative viewpoints.
8. Orally demonstrate mastery of broad and deep vocabulary appropriate for use in a variety of formal and informal settings.

Subarea III.3 – Reading Skills

Overarching Content Area Standard:

The ELL reads a variety of texts at different levels of complexity for a variety of purposes with an increasing level of comprehension and fluency.
O*NET Elements related to this Standard and its Subarea Standards and Benchmarks:

- Reading Comprehension. Understand written sentences and paragraphs in work-related documents.
- Written Comprehension. The ability to read and understand information and ideas presented in writing.
- Critical Thinking. Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- Attention to Detail. Be careful about detail and thorough in completing work tasks.

Subarea III.3 – Reading Skills (cont.)

Subarea Standards:

A. Implement a variety of reading comprehension strategies (e.g., predicting, inferring, comparing, and contrasting) and know when they are appropriate to use.

Detailed Work Activity	Industry Examples
Follow protocols or regulations for healthcare activities.	**Industry: Healthcare Sciences** **Position: Medication Aide** **Example:** Administers prescribed oral medications under the written direction of physician or as directed by home care nurse or aide and ensures patients take their medicine.
Read work orders to determine material or setup requirements.	**Industry: Transportation, Distribution, Logistics** **Position: Shipping Receiving Clerk** **Example:** Compares shipping routes or methods to determine which have the least environmental impact.
Review work orders or schedules to determine operations or procedures.	**Industry: Transportation, Distribution, Logistics** **Position: Material Handler** **Example:** Reads work orders to determine work assignments or material or equipment needs.

Subarea III.3 – Reading Skills (cont.)

B. Identify the central ideas or hypothesis and supporting details.

Detailed Work Activity	Industry Examples
Apply information technology to solve business or other applied problems.	**Industry: Construction and Extraction, multiple sectors** **Position: Service Unit Operators, multiple positions** **Example:** Applies new technologies to improve work processes.

Subarea III.3 – Reading Skills (cont.)

C. Read critically to analyze information and make connections to interpret authors' purpose and viewpoints.

Detailed Work Activity	Industry Examples
Examine documents to verify adherence to requirements.	**Industry: Advanced Manufacturing** **Position: Production, Planning Clerk** **Example:** Examines documents, materials, or products and monitors work processes to assess completeness, accuracy, and conformance to standards and specifications.
Proofread documents, records, or other files to ensure accuracy.	**Industry: Healthcare Sciences** **Position: Receptionist** **Example:** Computes, records, and proofreads data and other patient-related information such as records or reports.
Respond to customer problems or complaints.	**Industry: Transportation, Distribution, Logistics, multiple sectors** **Position: Customer Service Representative, multiple positions** **Example:** Understands basic types of standard letters and emails.
Study product information to acquire professional knowledge.	**Industry: Transportation, Distribution, Logistics** **Position: Shipping, Receiving, and Traffic Clerks** **Example:** Examines shipment contents and compares with records such as manifests, invoices, or orders to verify accuracy.

Subarea III.3 – Reading Skills (cont.)

D. Read from a variety of genres for different purposes (e.g., to accomplish a personal or work-related task, for academic work, or for pleasure).

Detailed Work Activity	Industry Examples
Examine documents to verify adherence to requirements.	**Industry: Advanced Manufacturing** **Position: Computer Numerical Control (CNC) Machinist** **Example:** Studies sample parts, blueprints, drawings, or engineering information to determine methods or sequences of operations needed to fabricate products.
Plan production or operational procedures or sequences.	**Industry: Advanced Manufacturing** **Position: Production Planning Clerk** **Example:** Examines documents, materials, or products and monitors work processes to assess completeness, accuracy, and conformance to standards and specifications.
Read work orders from supervisors or homeowners to determine work requirements.	**Industry: Construction & Extraction** **Position: Painter** **Example:** Mixes and matches colors of paint, stain, or varnish with oil or thinning and drying additives to obtain desired colors and consistencies.
Review customer insurance information.	**Industry: Transportation, Distribution, Logistics** **Position: Customer Service Representative** **Example:** Reviews insurance policy terms to determine whether a particular loss is covered by insurance.

Subarea III.3 – Reading Skills (cont.)

E. Acquire vocabulary and grammar knowledge progressively according to student proficiency to build strong mastery of the English language.

F. Increase background knowledge, concepts, and skills by reading in diverse texts.

Detailed Work Activity	Industry Examples
Understand main information from simple diagrams (e.g. graphs, bar charts).	**Industry: Construction and Extraction** **Position: Carpenters** **Example:** Follows established safety rules and regulations – including from reading relevant diagrams and procedures – and maintains a safe and clean environment.
Maintain current knowledge related to work activities.	**Industry: Construction & Extraction** **Position: Welders, Carpenters, Millwrights** **Example:** Understands safety guidelines, local building codes, signs and labels, specifications, and more to do the job safely and effectively.

Subarea III.3 – Reading Skills (cont.)

G. Ability to interpret a variety of texts, including visual and quantitative.

Detailed Work Activity	Industry Examples
Read work orders or other instructions to determine product specifications or materials requirements.	**Industry: Advanced Manufacturing** **Position: Production Distribution Planner** **Example:** Understands planning system requirements and executes orders to satisfy demand/shipping requirements.
Reviews work orders or schedules to determine operations or procedures.	**Industry: Construction and Extraction** **Position: HVAC Installer/Technician** **Example:** Reads plans to make adjustments for installations of equipment. Problem solving will be required to make necessary repairs, and workers will be required to understand evolving technologies and equipment changes.
Interpret blueprints, specifications, or diagrams to inform development of operational activities.	**Industry: Construction and Extraction** **Position: Welder** **Example:** Analyzes engineering drawings, blueprints, specifications, sketches, work orders, and material safety data sheets to plan layout, assembly, and welding operations
Scan short texts to locate specific information.	**Industry: Healthcare Sciences** **Position: Nutrition Technician** **Example:** Provides dietitians with assistance researching food, nutrition, or food service systems.

Subarea III.3 – Reading Skills (cont.)

H. Use digital resources to locate evidence to answer a question, solve a problem, or support an argument.

Detailed Work Activity	Industry Examples
Conduct research using digital resources.	**Industry: Multiple Industries** **Position: Customer Service Representative** **Example:** Uses the Internet and online systems to research and resolve a customer problem.

BENCHMARKS:

Level 1: Beginning Language Ability. These ELLs are true beginners and can obtain very limited meaning from print written in English. As they build reading skills, it is important for them to draw on any literacy skills they possess in their first language(s) and on their emerging speaking and listening skills in English.

1. Read from left to right, top to bottom, and front to back.
2. Identify the letters of the English alphabet (upper and lower case).
3. Decode and comprehend phonetically regular vocabulary words and common sight words in the environment, in isolation, on lists, or in short phrases or simple sentences.
4. Use basic reading strategies (e.g., word identification, think-alouds, underlining, cues, letter-sound associations, environmental print, word walls, and lists) to strengthen emerging reading skills.
5. Obtain basic meaning from simple printed and digital material (e.g., prices, dates, and times).

Subarea III.3 – Reading Skills (cont.)

BENCHMARKS (cont.):

Level 2: Low Beginning Language Ability. These ELLs can interpret and respond to information presented in simple passages with familiar words and language structures. They can answer literal questions that require one or two words for an answer.

1. Decode phonetically regular and irregular words and use context to gain meaning from simple texts.
2. Read and understand the meaning of simple passages and print that contain familiar words and structures.
3. Respond to printed phrases, interactions, and questions in familiar contexts by relying on non-verbal communication.
4. Identify information in a text when asked to answer basic wh-questions (e.g., who, what, where, why, when, and how).
5. Answer literal comprehension questions that are asked verbally (e.g., in discussion) or in writing (e.g., in class assignment).
6. Use supporting illustrations to interpret text.
7. Interpret information in charts and tables (e.g., bus schedules).

Level 3: High Beginning Language Ability. These ELLs know how to use context and basic reading comprehension strategies to make sense of print. They can answer literal questions asking wh-questions (e.g., who, what, where, why, when, and how).

1. Interpret moderately complex reading passages.
2. Use context to determine the meaning of unfamiliar words when reading on familiar topics.
3. Apply appropriate reading strategies (e.g., preview, view, and review) as a tool to comprehend text.
4. Answer literal comprehension questions (e.g., true/false and multiple-choice questions) to show understanding of text.
5. Identify information to answer wh-questions (e.g., who, what, where, why, when, and how).
6. Identify main and supporting details of an extended-paragraph or multi-paragraph text on a familiar topic.
7. Scan complex or extended texts (e.g., web pages, documents, narratives, work manuals, or procedures) to find specific information or general meaning.
8. Generate questions about what has been read.

Subarea III.3 – Reading Skills (cont.)

BENCHMARKS (cont.):

Level 4: Low Intermediate Language Ability. These ELLs can read texts representing different genres to answer basic comprehension questions, identify main ideas and supporting details, and make simple inferences.

1. Identify elements of different reading genres and use text structure to help in comprehension.
2. Read and comprehend multi-paragraph texts on a variety of topics and in a variety of text types (e.g., newspaper and magazine articles, how-to materials, and literature).
3. Identify the intended audience and purpose for a variety of text types.
4. Make connections between related information across different sections of a text, from different texts, or presented on different platforms (e.g., print or electronic media).
5. Compare and contrast what has been read, considering factors such as presentation format (print or electronic media), point of view, accuracy, etc.
6. Interpret simple analogies, idioms, and other rhetorical devices when reading a text about familiar topics.
7. Accurately paraphrase and summarize information that has been read in print or in electronic media.
8. Use a variety of strategies (e.g., concept mapping, outlining, underlining, and annotating) to assist in comprehension.

Level 5: High Intermediate Language Ability. These ELLs can analyze information and make summaries. They are able to read critically and use high-level reading comprehension strategies.

1. Interpret moderately complex written texts.
2. Apply reading strategies appropriate to comprehend increasingly complex literary and informational texts (e.g., print or digital presentation).
3. Analyze and summarize information to strengthen reading comprehension.
4. Read critically and identify information in text that will support one's opinions about and interpretations of the text.
5. Interpret the meaning in context of increasingly complex figures of speech and rhetorical devices.
6. Use reference tools to support reading comprehension (e.g., book, manual, computer application help features, or Internet-based reference tools).
7. Determine the sequence of events in a complex narrative and understand techniques that show sequence (e.g., foreshadowing).
8. Identify, interpret, and evaluate the role and impact of ambiguity, bias subtleties, contradictions, irony, and incongruities in a text.

Subarea III.3 – Reading Skills (cont.)

BENCHMARKS (cont.):

Level 6: Advanced Language Ability. These ELLs can read increasingly complex text and use advanced reading strategies for comprehension.

1. Use advanced reading strategies (e.g., inference, making predictions, identifying an author's assumptions and biases, and evaluating the credibility and adequacy of evidence presented).
2. Evaluate print and digital texts using criteria to determine aesthetic value, reliability, and credibility.
3. Read, comprehend, and use increasingly complex print and digital texts for a variety of purposes, about a variety of topics, and in a variety of settings (e.g., to be informed, expand knowledge and skills, or conduct research).
4. Identify and evaluate an author's purpose and arguments and refer to the text to support, defend, or clarify one's interpretations.
5. Identify, analyze, and evaluate an author's implicit and explicit assumptions and beliefs about a topic, time, or theme.
6. Document one's reading by recording citations, taking notes, developing graphics, and writing summaries or abstracts, etc.
7. Paraphrase accurately and summarize information from texts in print or in electronic media.

Subarea III.4 – Writing Skills

Overarching Content Area Standard:

The ELL writes in a variety of forms with increasing ease, accuracy, and complexity to effectively address specific purposes and audiences.
O*NET Elements related to this Standard and its Subarea Standards and Benchmarks:

- Writing. Communicate effectively in writing as appropriate for the needs of the audience.
- Written Expression. Communicate information and ideas in writing so others will understand.
- Attention to Detail. Be careful about detail and thorough in completing work tasks.
- Critical Thinking. Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

Subarea Standards:
A. Fill out a variety of forms, applications, and contracts for everyday life and work purposes by hand or electronically.

Detailed Work Activity	Industry Examples
Test products or subassemblies for functionality or quality.	**Industry: Advanced Manufacturing** **Position: Quality Assurance Technician** **Example:** Verifies the readings and records the results for equipment calibrations. Identifies, assists, addresses, and documents quality holds. Reads labels on products to ensure accuracy of shop orders.
Record details of deliveries or shipments.	**Industry: Transportation, Distribution, Logistics** **Position: Freight and Cargo Inspectors, Checkers** **Example:** Records details about freight conditions, handling of freight, and any problems encountered.

Subarea III.4 – Writing Skills (cont.)

B. Write for a variety of purposes (e.g., reminder lists, notes, email, academic papers and reports, letters or other documents to persuade, complain, or express opinions).

Detailed Work Activity	Industry Examples
Write a simple work-related email/letter to someone outside their company.	**Industry: Healthcare Sciences** **Position: Patient Care Representative** **Example:** Develops and distributes newsletters, brochures, or other printed materials to share information with patients or medical staff.
Process and prepare memos, correspondence, travel vouchers, or other documents.	**Industry: Healthcare Sciences** **Position: Receptionist** **Example:** Reproduces documents from notes or rough drafts using personal computer skills.
Enter information into databases or software programs.	**Industry: Transportation, Distribution, Logistics** **Position: Clerks, Managers, Supervisors** **Example:** Responds to emails. Documents rationales for day-to-day operations, performance, evaluations, and observations.

Subarea III.4 – Writing Skills (cont.)

C. Write across a variety of genres (e.g., description, argumentation, fiction, persuasive, and workplace).

Detailed Work Activity	Industry Examples
Recommend personnel decisions or human resources activities.	**Industry: Transportation, Distribution, Logistics** **Position: Front-line Supervisor** **Example:** Prepares and maintain work records and reports of information such as employee time and wages, daily receipts, or inspection results.

Subarea III.4 – Writing Skills (cont.)

D. Write using appropriate format and structure for different purposes (e.g., outlines, memos, letters, reports, procedural lists, work-related documents).

Detailed Work Activity	Industry Examples
Write reports or evaluations.	**Industry: Advanced Manufacturing** **Position: Inspector** **Example:** Writes test or inspection reports describing results, recommendations, or needed repairs.
Write a short report on a work-related task or event.	**Industry: Healthcare Sciences** **Position: First-Line Supervisor** **Example:** Analyzes and records personnel or operational data and writes related activity reports.
Document operational procedures.	**Industry: Transportation, Distribution, Logistics** **Position: Customer Service Representative** **Example:** Recommends improvements in products, packaging, shipping, service, or billing methods and procedures to prevent future problems.

Subarea III.4 – Writing Skills (cont.)

E. Use a multi-step process to compose, revise, and edit a variety of texts.

Detailed Work Activity	Industry Examples
Prepare documentation for contracts, transactions, or regulatory compliance.	**Industry: Advanced Manufacturing** **Position: Production Planning Clerk** **Example:** Revises production schedules when required due to design changes, labor or material shortages, backlogs or other interruptions, collaborating with management, marketing, sales, production, or engineering.
Record information from meetings or other formal proceedings.	**Industry: Construction and Extraction** **Position: First-Line Supervisor** **Example:** Researches, compiles, and prepares reports, manuals, correspondence, or other information required by management or governmental agencies.

Subarea III.4 – Writing Skills (cont.)

F. Write with logic, organization, and accuracy.

Detailed Work Activity	Industry Examples
Prepare informational or reference material.	**Industry: Multiple** **Position: Clerk, Administrative** **Example:** Updates manuals when rates, rules, or regulations are changed or updated.
Operate computers or computerized equipment.	**Industry: Transportation, Distribution, Logistics** **Position: Logistics Manager** **Example:** Provides an email to a local vendor about the quality of products that are being delivered through the contract.

Subarea III.4 – Writing Skills (cont.)

G. Consider context, audience, and purpose (e.g., reader's perspective, cultural influence, social norms, etc.) when writing.

Detailed Work Activity	Industry Examples
Write a short report on a work-related task or event.	**Industry: Advanced Manufacturing** **Position: First-Line Supervisor** **Example:** Writes an email or completes an online form to recommend or execute personnel actions such as hirings, evaluations, or promotions.
Communicate situation details to appropriate personnel.	**Industry: Construction and Extraction** **Position: Electrician** **Example:** Advises management on whether continued operation of equipment could be hazardous.
Operate computers or computerized equipment.	**Industry: Healthcare Sciences** **Position: First-Line Supervisor** **Example:** Communicates clearly and effectively by email to clinical and non-clinical departments and staff members to ensure appropriate patient flow and safe patient care.

H. Acquire vocabulary and grammar knowledge progressively according to student proficiency to build strong mastery of the written English language.

Subarea III.4 – Writing Skills (cont.)

I. Integrate graphics or multimedia to support written compositions or oral presentations.

Detailed Work Activity	Industry Examples
Write instructions on how to use a device or product.	**Industry: Construction and Extraction** **Position: Derrick Operator, Oil and Gas** **Example:** Develop presentations (e.g., PowerPoints) in order to help train crew members.

BENCHMARKS:

Level 1: Beginning Language Ability. These ELLs are true beginners and can write isolated words, individual short sentences, and phrases. If their first language used a different orthography, they are in the process of acquiring the Roman alphabet and its organizing conventions. They can also copy familiar words from a source.

1. Write from left to right, top to bottom, and front to back.
2. Write the letters of the English alphabet (upper and lower case).
3. Write words and simple phrases and sentences.
4. Write simple lists of words for specific purposes (e.g., a list of ingredients or a shopping list).
5. Copy/transcribe familiar words from a variety of sources.
6. Use capitalization and punctuation to mark the beginning and end of sentences.

Subarea III.4 – Writing Skills (cont.)

BENCHMARKS (cont.):

Level 2: Low Beginning Language Ability. These ELLs can write basic phrases and sentences.

1. Use pronoun referents correctly across a statement or passage (e.g., "Maria travels with her dog.").
2. Write using high-frequency words/phrases and short, simple sentences (or even short paragraphs) based primarily on recently practiced, learned, or highly familiar material.
3. Compose simple paragraphs that include a main idea.
4. Write a simple narrative that includes a clear sequence of events.
5. Use basic grammatical agreement and structures with the present tense of regular and irregular verbs.
6. Complete everyday functional forms and applications (e.g., job applications, banking forms, rental agreements, and other contracts).
7. Demonstrate expanded vocabulary knowledge, identify different registers for writing and speaking (e.g., the need to adjust the level of formality with which they write and speak).

Level 3: High Beginning Language Ability. These ELLs can write messages, simple descriptions, and brief narratives about familiar topics.

1. Use comparative forms of adjectives and adverbs.
2. Write a simple description or narrative using familiar words and phrases.
3. Write a complete paragraph about a familiar topic.
4. Demonstrate mastery of conventions of personal correspondence, including different conventions for email or print formats (e.g., addressing an envelope or writing subject lines in an email).
5. Expand vocabulary knowledge and use formal and academic registers (e.g., the need to adjust the level of formality with which they write and speak).

Subarea III.4 – Writing Skills (cont.)

BENCHMARKS (cont.):

Level 4: Low Intermediate Language Ability. These ELLs can write with an audience in mind and for personal and work-related communication.

1. Write compositions that show consideration of audience and purpose (e.g., work-related versus personal correspondence).
2. Write short compositions that show understanding of different genres.
3. Use transition words and phrases appropriately and with correct punctuation (e.g., however, next, then, and after).
4. Understand vocabulary knowledge and show understanding of how idioms, figures of speech, juxtaposed words, and comparisons enrich one's writing.
5. Use words that are appropriate for informal (colloquial or slang) written discourse or formal written discourse.
6. Engage in all steps of the writing process (e.g., drafting, editing, and publishing) to create a range of short compositions.
7. Write supporting points or details for a statement, position, or argument on a familiar topic.
8. Recognize word families (e.g., verbs and nouns, adjectives and adverbs, etc.) to develop vocabulary in writing.

Level 5: High Intermediate Language Ability. These ELLs can write about previously discussed topics, use complex transition words, and follow the basic steps of the writing process.

1. Write multi-paragraph compositions that are argumentative or opinion-based and that concern a variety of topics.
2. Write multi-paragraph descriptive and narrative compositions that concern a variety of topics.
3. Use transition words and phrases (e.g., therefore, nevertheless, and in addition) to make writing more complex.
4. Understand the writing process (e.g., drafting, editing, and publishing) to create longer compositions, whether in print or digital formats.
5. Use a wide range of vocabulary including synonyms, antonyms, precise knowledge, and phrasal verbs on a variety of topics.
6. Write increasingly sophisticated multi-paragraph compositions that present information and ideas concisely, logically, and persuasively.

Subarea III.4 – Writing Skills (cont.)

BENCHMARKS (cont.):

Level 6: Advanced Language Ability. These ELLs can write multi-paragraph compositions with fluency, logic, and organization and with an audience in mind for a variety of purposes (e.g., personal needs, academic assignments, work-related needs, and for civic participation).

1. Write commentaries that summarize and then analyze and evaluate a specific topic.
2. Write outlines and analytic summaries prior to writing a research report.
3. Edit writing to conform to conventions of Standard English, including voice, tense, structure, and grammar, using print and digital aids as needed.
4. Write with increasing fluency and sophistication for different audiences and purposes (e.g., workplace, classroom, and daily life needs).
5. Demonstrate a range of different styles of writing for different purposes.
6. Apply strategies used to influence or entertain audiences (e.g., ethos, pathos, logos, and humor).
7. Explain and extend ideas presented in primary and secondary sources through original analysis, evaluation, and elaboration.
8. Write increasingly complex texts (e.g., newspaper and magazine articles, technical materials, and research reports).
9. Select from a full range of vocabulary choices to express one's ideas in rich, precise, and flowing language through the use of print or digital reference guides.

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APPENDIX A

New Educational Functioning Level Descriptors for Adult Basic Education and English as a Second Language

New Educational Functioning Level Descriptors for Adult Basic Education (ABE)[1,2]

Literacy/English Language Arts

Introduction

The educational functioning level (EFL) descriptors for Literacy/English Language Arts are intended to guide both teaching and assessment for adult learners. They are divided into six EFLs: Beginning Literacy; Beginning Basic; Low Intermediate; High Intermediate; Low Adult Secondary; and High Adult Secondary. The descriptors do not provide a complete or comprehensive delineation of all of the skills at any given level but provide examples of the most critical concepts and skills for the level. The descriptors use the College and Career Readiness (CCR) Standards for Adult Education (CCR) as the foundation.

While these narrative descriptors address the most critical concepts for assessment and instruction for adult learners, lesson plans and test items should be based on additional critical concepts from State instructional frameworks and standards, as appropriate for the learner and State requirements.

The EFLs for Literacy/English Language arts are organized into reading, writing, speaking and listening, and language domains. Emphasis was placed on reading and writing because most instruction and assessment attention will be paid to these domains for ABE students. In addition, the descriptors were further informed by OCTAE's Framework for Employability Skills to ensure the levels paid adequate attention to workforce preparation.

[1]The performance indicators presented in this document have been excerpted from Appendix B: New Educational Functioning Level Descriptors for Adult Basic Education and English as a Second Language (pp. B1-B27), Technical Assistance Guide for Performance Accountability under the Workforce Innovation and Opportunity Act, December 2018, U.S. Department of Education, Division of Adult Education and Literacy, Office of Career, Technical and Adult Education, https://www.nrsweb.org/sites/default/files/NRS-TA-January-2018-508.pdf

[2]These descriptors are included in the AEFLA information collection (OMB control number 1830-0027) and were implemented with Federal Register notice 82 FR 42339. Programs may continue to use existing tests aligned with the NRS educational functioning level descriptors in Exhibit 2.2 until February 2, 2019.

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Literacy/English Language Arts (cont.)

Introduction (cont.)

Reading
The reading sections of the descriptors are consistently more comprehensive than the other domains. Reading is a critical area for college and career readiness. One of the elements in the reading descriptors that draws clear distinctions between competencies required at each level is the complexity of the text that students are to be reading. The EFLs specify a staircase of increasing text complexity for students to master from beginning basic reading through the college and career readiness level. The comprehension skills of reading are to be applied to level-appropriate complex text. The reading domain elements of the descriptors carry within it references to other key skills from the other domains and workforce preparation skills. Examples of this include listening comprehension as a supplement to reading comprehension at levels 1 and 2 so students can work with the richer ideas adult students can handle intellectually, if not yet independently through their own reading. It also includes integrating and evaluating information from a variety of media, including translating quantitative or technical information presented visually or in words. Learning to work with diverse media is an important job skill as well as a critical applied academic skill. Another example is an emphasis on research that includes a combination of reading, writing, and speaking and listening skills—again as a way to connect the domains in important ways and to create the EFLs as a focused and useful document.

Writing
Details about the level of writing proficiency required at each level have been pared to draw clear distinctions between competencies required at each level. The descriptors emphasize writing arguments and writing to inform and explain from Level 3 and beyond. Both writing types stress writing to sources and asking students to draw evidence from texts is emphasized in the descriptors. With writing, many of the process standards were not included because process proficiency is hard to measure. In addition, reference is consistently made to research skills in both the reading and writing sections of each level as these skills are important to writing.

Speaking and Listening
The speaking and listening descriptors at each level are connected closely to workforce preparation and the Employability Skills Framework. These skills have the benefit of both being measurable and clearly related to citizenship, work, and life success. Collaborative conversations and teamwork are emphasized at every level as is students' use of evidence. In this context of speaking and listening, the descriptors reflect use of listening comprehension capacities (particularly in Levels 1 and 2 to augment students' lower reading comprehension abilities), evidence in conversation, ability to evaluate what others are saying, and the capacity to share information effectively with others.

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Literacy/English Language Arts (cont.)

Introduction (cont.)

Language
In the language domain, descriptors are consistent with workforce preparation from the Employability Skills Framework and are vital to attaining college and career readiness from each level such as a growth in students' grammar and punctuation skills, as well as their growth in vocabulary.

Level 1: Beginning Literacy

Reading: Individuals ready to exit the Beginning Literacy Level comprehend how print corresponds to spoken language and are able to demonstrate understanding of spoken words, syllables, and sound-letter relationships (phonetic patterns), including consonant digraphs and blends. In particular, students at this level are able to recognize and produce rhyming words, blend and segment onsets and rhymes, isolate and pronounce initial, medial, and final sounds, add or substitute individual sounds, and blend and segment single syllable words. They are able to decode two-syllable words following basic patterns as well as recognize common high frequency words by sight. Individuals are able to read simple decodable texts with accuracy, appropriate rate, and expression. They are able to determine the meaning of words and phrases in texts with clear and explicit context.

Individuals ready to exit this level are able to determine main ideas, retell key details, and ask and answer questions about key details in simple texts. Individuals are also able to use the illustrations in the text(s), whether print or digital, to describe its key ideas (e.g., maps, charts, photographs, cartoons). They also are able to use text features, both print and digital, to locate key facts or information. When listening to text above their current independent reading level, they are able to identify the reasons an author gives to support points in a text, describe the connections between ideas within a text, and examine the basic similarities in and differences between two texts on the same topic.

Writing: Individuals ready to exit the Beginning Literacy Level are able to write basic sight words and familiar words and phrases as they compose simple sentences or phrases. This includes writing simple informative texts in which they supply some facts about a topic and narratives that include some details regarding what happened. They use simple transition and temporal words to signal event order (e.g., so, and, because, when, next, finally). With support, they are able to gather and use information from provided sources, both print and digital, to answer a simple research question.

Literacy/English Language Arts (cont.)

Level 1: Beginning Literacy (cont.)

Speaking and Listening: Individuals ready to exit this level are able to participate in conversations of short duration, collaborating with diverse partners and groups, while respecting individual differences. This includes following agreed upon rules for discussion and responding to the comments of others through multiple exchanges. Individuals are able to describe people, places, things, and events with relevant details, producing complete sentences when appropriate to task and situation. They can discuss what they have heard read aloud and ask and answer questions about it.

Language: When writing and speaking, individuals ready to exit this level are able to correctly use frequently occurring nouns, verbs (past, present, and future), adjectives, pronouns, prepositions and conjunctions. When writing sentences individuals correctly use capitalization, ending punctuation, and commas in dates and to separate single words in a series. They are able to spell words with common patterns and frequently occurring irregular words. Other words they spell phonetically. In response to prompts, they are able to produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences orally. Individuals are able to determine the meaning of unknown and multiple-meaning words by applying their knowledge of frequently occurring roots and affixes, as well as sentence-level context. They are able to distinguish shades of meaning among verbs (e.g., look, glance, stare, glare) and adjectives differing in intensity (e.g., large, gigantic) by choosing them or acting out their meanings.

Level 2: Beginning Basic

Reading: Individuals ready to exit the Beginning Basic Level are able to decode multi-syllable words, distinguish long and short vowels when reading regularly spelled one-syllable words, and recognize the spelling-sound correspondences for common vowel teams. They also are able to identify and understand the meaning of the most common prefixes and suffixes. They can read common irregular sight words. Individuals are able to read level appropriate texts (e.g., texts with a Lexile Measure of between 420 and 820) with accuracy, appropriate rate, and expression.2 They are able to determine the meaning of words and phrases in level-appropriate complex texts. Individuals ready to exit this level are able to determine main ideas, ask and answer questions about key details in texts and show how those details support the main idea. Individuals also are able to explain how specific aspects of both digital and print illustrations contribute to what is conveyed by the words of a text. They are able to compare and contrast the most important points and key details of two texts on the same topic. When listening to text above their current independent reading level, they are able to describe the relationship between ideas in a text in terms of time, sequence, and cause/effect, as well as use text features and search tools, both print and digital, to locate information relevant to a given topic efficiently. They also are able to describe how reasons support specific points an author makes in a text and identify the author's main purpose or what the author wants to answer, explain or describe, as well as distinguish their own point of view from that of the author's.

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Literacy/English Language Arts (cont.)

Level 2: Beginning Basic (cont.)

Writing: Individuals ready to exit the Beginning Basic Level are able to write opinion pieces on topics or texts, supporting a point of view with reasons. They are able to write simple informative texts in which they examine a topic and convey information clearly. They also are able to write narratives with details that describe actions, thoughts, and feelings. They use transition and temporal words (e.g., also, another, more, but) to link ideas and signal event order. Individuals ready to exit this level are able to use technology to produce and publish writing as well as to interact and collaborate with others. They are able to conduct short research projects and summarize their learning in print. This includes taking brief notes from both print and digital sources, and sorting evidence into provided categories.

Speaking and Listening: Individuals ready to exit this level are able to participate in a range of collaborative conversations with diverse partners and groups, respecting individual differences. This includes gaining the floor in respectful way, linking their comments to the remarks of others, and expressing their own ideas clearly in light of the discussions. Individuals are able to report on a topic or text or recount an experience with appropriate facts and relevant, descriptive details. They are able to speak in complete sentences appropriate to task and situation in order to provide requested detail or clarification. They can discuss what they have heard read aloud and provide the main ideas and appropriate elaboration and detail about the information presented.

Language: When writing and speaking, individuals ready to exit this level are able to correctly use regular and irregular nouns and verbs, comparative and superlative adjectives and adverbs, and coordinating and subordinating conjunctions. When writing simple, compound and complex sentences, individuals use correct subject-verb and pronoun-antecedent agreement. They also use correct capitalization, ending punctuation, commas, and apostrophes to form contractions and possessives. They also are able to spell words with conventional patterns and suffixes. They are able to use spelling patterns and generalizations (e.g., word patterns, ending rules) in writing words. In response to prompts, they are able to produce, expand, and rearrange simple and compound sentences. Individuals are able to determine the meaning of unknown and multiple-meaning words in level-appropriate complex texts, including academic words, by applying their knowledge of roots and affixes, as well as sentence-level context. They are able to distinguish literal from non-literal meaning of words, and shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, wondered, suspected). They are able to demonstrate understanding of and use general academic words that signal spatial and temporal relationships.

Literacy/English Language Arts (cont.)

Level 3: Low Intermediate

Reading: Individuals ready to exit the Low Intermediate Level are able to read fluently text of the complexity demanded of this level (e.g., a Lexile Measure of between 740 and 1010). They are able to use knowledge of letter-sound correspondences, syllabication patterns, and roots and affixes to accurately decode unfamiliar words. They are able to determine the meaning of words and phrases (e.g., metaphors and similes) in level-appropriate complex texts. Individuals ready to exit this level are able to make logical inferences, summarize central ideas or themes, and explain how they are supported by key details. They are able to explain events, procedures, or ideas in historical, scientific, or technical texts, including what happened and why. They are able to describe the overall structure of a text and compare and contrast the structures of two texts. Individuals ready to exit this level are also able to interpret information presented visually, orally, or quantitatively to find an answer to a question or solve a problem. They display this facility with both print and digital media. Individuals are able to explain how authors use reasons and evidence to support particular points in a text and can integrate information from several texts, whether print, media, or a mix, on the same topic. They are able to describe how point of view influences how events are described. They are able to analyze multiple accounts of the same event or topic noting similarities and differences. They are able to produce valid evidence for their findings and assertions.

Writing: Individuals ready to exit the Low Intermediate Level are able to write opinion pieces on topics or texts, supporting a point of view with facts and logically ordered reasons. They are able to produce informative texts in which they develop a topic with concrete facts and details. They convey information clearly with precise language and well-organized paragraphs. They link ideas, opinions, and reasons with words, phrases, and clauses (e.g., another, specifically, consequently, because). They are also able to use technology (including the Internet) to produce and publish writing as well as to interact and collaborate with others. They are able to conduct short research projects, making frequent use of on-line as well as print sources. This includes the ability to draw evidence from several texts to support an analysis. They are able to summarize or paraphrase information from and provide a list of those sources.

Speaking and Listening: Individuals ready to exit this level are able to participate in a range of collaborative conversations with diverse partners and groups, respecting individual differences. This includes demonstrating an understanding of teamwork and working well with others by carrying out their assigned roles, and posing and responding to specific questions, and making comments that contribute to and elaborate on the remarks of others. Individuals are able to report on a topic or text or present an opinion, sequencing ideas logically, and providing appropriate facts and relevant, descriptive details that support the main ideas or themes. They are able to differentiate between contexts that call for formal English and situations where informal discourse is appropriate. They also are able to paraphrase and summarize what they have heard aloud and explain how each claim is supported by reasons and evidence.

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Literacy/English Language Arts (cont.)

Level 3: Low Intermediate (cont.)

Language: When writing and speaking, individuals ready to exit this level are able to use verb tenses to convey various times, sequences, states, and conditions correctly and recognize inappropriate shifts in verb tense. They use prepositions, conjunctions, and interjections properly. Individuals write simple, compound and complex sentences and use correct subject-verb and pronoun-antecedent agreement throughout a piece of writing. They also use correct capitalization, commas, and underlining, quotation marks, and italics to indicate titles of works. They are able to correctly use frequently confused words (e.g., to, too, two; there, their) and spell correctly, consulting references as needed. They are able to produce complete sentences, recognizing and correcting inappropriate fragments and run-ons as well as expand, combine, and reduce sentences for meaning, reader interest, and style. Individuals are able to determine the meaning of unknown and multiple-meaning words in level-appropriate complex texts, including academic words, by applying their knowledge of roots and affixes, as well as sentence-level context. Individuals are able to interpret figurative language, including similes and metaphors. They also are able to recognize and explain the meaning of common idioms, adages, and proverbs. They are able to demonstrate understanding of and use general academic words that signal precise actions or emotions (e.g., whined, stammered), signal contrast (e.g., however, nevertheless), or other logical relationships (e.g., however, similarly), and are basic to a particular topic (e.g. endangered when discussing animal preservation).

Level 4: High Intermediate

Reading: Individuals who are ready to exit the High Intermediate Level are able to read fluently text of the complexity demanded of this level (e.g., a Lexile Measure of between 925 and 1185). They display increasing facility with academic vocabulary and are able to analyze the impact of a specific word choice on meaning and tone in level-appropriate complex texts.

Individuals are able to make logical inferences by offering several pieces of textual evidence. This includes citing evidence to support the analysis of primary and secondary sources in history, as well as analysis of science and technical texts. They are able to summarize and analyze central ideas, including how they are conveyed through particular details in the text. They also are able to analyze how a text makes connections among and distinctions between ideas or events and how major sections of a text contribute to the development of the ideas. They also are able to follow multistep procedures. Individuals are able to identify aspects of a text that reveal point of view and assess how point of view shapes style and content in texts. In addition, they are able to evaluate the validity of specific claims an author makes through the sufficiency of the reasoning and evidence supplied in the text. This includes analyzing how an author responds to conflicting evidence or viewpoints. They are able to analyze how multiple texts address similar themes, including how authors acknowledge and respond to conflicting evidence or viewpoints and include or avoid particular facts. Individuals are

Literacy/English Language Arts (cont.)

Level 4: High Intermediate (cont.)

Reading (cont.)
also able to analyze the purpose of information presented in diverse media as well as integrate and evaluate content from those sources, including quantitative or technical information presented visually and in words. They are able to produce valid evidence for their findings and assertions, make sound decisions, and solve problems.

Writing: Writing in response to one or more text(s), individuals ready to exit this level are able to compose arguments and informative texts (this includes the narration of historical events, scientific procedures/experiments, or technical processes). When writing arguments, they are able to introduce claims, acknowledge alternate or opposing claims, support claims with clear reasons and relevant evidence, and organize them logically in a manner that demonstrates an understanding of the topic. When writing informative texts, individuals are able to examine a topic through the selection, organization, and analysis of relevant facts, concrete details, quotations and other information to aid comprehension. Individuals create cohesion in their writing by clarifying the relationships among ideas, reasons, and evidence; using appropriate transitions; and including a logical progression of ideas, and maintaining consistency in style and tone. Individuals are able to use specific word choices appropriate for the topic, purpose, and audience. They also are able to use technology to produce and publish writing and link to and cite sources. They conduct short research projects, drawing on several sources. This includes the ability to draw evidence from several texts to support an analysis. It also includes the ability to locate and organize information, assess the credibility and accuracy of each source, and communicate the data and conclusions of others while avoiding plagiarism.

Speaking and Listening: Individuals ready to exit the High Intermediate level collaborate well as a member of team by building on others' ideas, expressing their own clearly and maintaining a positive attitude. This includes following the rules for collegial discussions and decision-making and tracking progress toward specific goals and deadlines. It also includes the ability to pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence and ideas. During these discussions, individuals are able to qualify, alter, or justify their own views in light of the evidence presented by others. Just as in writing, individuals are able to delineate a speaker's argument, evaluating the soundness of the reasoning and relevance of the evidence. They are able to identify when irrelevant evidence is introduced. They also are able to present their own claims and findings that emphasize salient points in a focused and coherent manner, with relevant evidence, valid reason ing, and well-chosen details. Individuals adapt their speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

Literacy/English Language Arts (cont.)

Level 4: High Intermediate (cont.)

Language: When writing and speaking, individuals ready to exit the High Intermediate level are able to ensure pronouns are in the proper case, recognize and correct inappropriate shifts in pronoun number and person, and correct vague or unclear pronouns. They know how to form all verb tenses, and recognize and correct inappropriate shifts in verb voice and mood. They know how to recognize and correct misplaced and dangling modifiers. They are able to adapt their speech to a variety of contexts and tasks when indicated. They are able to choose language that expresses ideas precisely and concisely, recognizing and eliminating redundancy and wordiness as well as maintaining consistency in style and tone. Though errors may be present, the meaning of their written and oral communications is clear. Individuals are able to determine the meaning of unknown and multiple-meaning words and phrases as they are used in level–appropriate complex texts through context clues, knowledge of affixes and roots, and use of reference materials.

Level 5: Low Adult Secondary

Reading: Individuals who are ready to exit Low Adult Secondary Level are able to read fluently texts that measure at the secondary level of complexity (e.g., a Lexile Measure of between 1050 and 1335). This includes increasing facility with academic vocabulary and figurative language in level-appropriate complex texts. This includes determining the meaning of symbols and key terms used in a specific scientific or technical context. They are able to analyze the cumulative impact of specific word choices on meaning and tone. Individuals are able to make logical and well-supported inferences about those complex texts. They are able to analyze the development of central ideas over the course of a text and explain how they are refined by particular sentences, paragraphs, or portions of text. They are able to provide an objective summary of a text. They are able to analyze in detail a series of events described in text and determine whether earlier events caused later ones or simply preceded them. They also are able to follow complex multistep directions or procedures. Individuals are able to compare the point of view of two or more authors writing about the same or similar topics. They are able to evaluate the validity of specific claims an author makes through the sufficiency and relevance of the reasoning and evidence supplied. They also are able to identify false statements and fallacious reasoning. They are able to analyze how multiple texts address related themes and concepts, including challenging texts, such as seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address). In addition, they are able to contrast the findings presented in a text, noting whether those findings support or contradict previous explanations or accounts. Individuals are also able to translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically into words. Through their reading and research, they are able to cite strong and thorough textual evidence for their findings and assertions to make informed decisions and solve problems.

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Literacy/English Language Arts (cont.)

Level 5: Low Adult Secondary (cont.)

Writing: Writing in response to one or more text(s), individuals ready to exit this level are able to compose arguments and informative texts (this includes the narration of historical events, scientific procedures/experiments, or technical processes). When writing arguments, they are able to introduce precise claims, distinguish the claims from alternate or opposing claims, and support claims with clear reasons and relevant and sufficient evidence. When writing informative texts, they are able to examine a topic through the effective selection, organization, and analysis of well chosen, relevant, and sufficient facts appropriate to the audience's knowledge of the topic. They use appropriate and varied transitions as well as consistency in style and tone to link major sections of the text, create cohesion, and establish clear relationships among claims, reasons, and evidence. Individuals use precise language and domain-specific vocabulary to manage the complexity of the topic. They are also able to take advantage of technology's capacity to link to other information and display information flexibly and dynamically. They conduct short research projects as well as more sustained research projects to make informed decisions and solve problems. This includes the ability to draw evidence from several texts to support an analysis. It also includes the ability to gather and organize information, assess the credibility, accuracy, and usefulness of each source, and communicate the data and conclusions of others while avoiding plagiarism.

Speaking and Listening: Individuals ready to exit the Low Adult Secondary level are able to participate in a thoughtful, respectful, and well-reasoned exchange of ideas as a member of a team. As they collaborate with peers, they are able to set rules for collegial discussions and decision-making, clear goals, and deadlines. They are able to propel these conversations forward by clarifying, verifying, or challenging ideas that are presented, actively incorporating others into the discussion, responding thoughtfully to diverse perspectives, and summarizing points of agreement and disagreement. They also are able to qualify, alter, or justify their own views and understanding in light of the evidence and reasoning presented by others. Just as in writing, individuals are able to evaluate a speaker's point of view, and in particular, assess the links among ideas, word choice, and points of emphasis and tone used. They also are able to present their own findings and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning. Individuals adapt their speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. Language: Individuals ready to exit the Low Adult Secondary level demonstrate strong control of English grammar, usage, and mechanics and use these elements to enhance the presentation of ideas both in speech and writing. This includes the use of parallel structure and the correct use of various types of phrases and clauses to convey specific meanings. They are able to adapt their speech to a variety of contexts and tasks when indicated. Though some errors may be present, meaning of their written and oral communications is clear. Individuals are able to determine the meaning of unknown and multiple-meaning words and phrases as they are used in level-appropriate complex texts through context clues, knowledge of affixes and roots, and use of reference materials.

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Literacy/English Language Arts (cont.)

Level 6: High Adult Secondary

Reading: Individuals who are ready to exit High Adult Secondary Level are able to read fluently at the college and career readiness level of text complexity (e.g., a Lexile Measure between 1185 and 1385). This includes increasing facility with academic vocabulary and figurative language sufficient for reading, writing, speaking, and listening at the college and career readiness level. They are able to analyze the cumulative impact of specific word choices on meaning and tone. Individuals are able to make logical and well-supported inferences about those complex texts. They are able to summarize the challenging ideas, concepts or processes contained within them. They are able to paraphrase texts in simpler but still accurate terms. Whether they are conducting analyses of complex primary and secondary sources in history or in scientific and technical texts, they are able to analyze how the ideas and concepts within them develop and interact. Individuals are able to assess how points of view shape style and content in texts with particular attention to distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement). Individuals are able to analyze how multiple texts address related themes and concepts, including challenging texts such as U.S. founding documents (Declaration of Independence, the Bill of Rights). In addition, they are able to compare and contrast treatments of the same topic in several primary and secondary sources. Individuals are also able to integrate and evaluate multiple sources of information presented in diverse media in order to address a question. Through their reading and research at complex levels, they are able to cite strong and thorough textual evidence for their findings and assertions to make sound decisions and solve problems.

Writing: Writing in response to one or more text(s), individuals ready to exit this level are able to compose arguments and informative texts (this includes the narration of historical events, scientific procedures/experiments, or technical processes). When writing arguments, they are able to create an organization that establishes clear relationships among the claim(s), counterclaim(s), reasons and evidence. They fully develop claims and counterclaims, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns. When writing informative texts, they are able to organize complex ideas, concepts, and information to make important connections and distinctions through the effective selection and analysis of content. They use appropriate and varied transitions to clarify the relationships among complex ideas, create cohesion, and link major sections of the text. Individuals are able to maintain a formal style while they attend to the norms and conventions of the discipline in which they are writing. They are also able to take advantage of technology's capacity to link to other information and display information flexibly and dynamically. They conduct short research projects as well as more sustained research projects that require the synthesis of multiple complex sources to make informed decisions and solve problems. This includes the ability to draw evidence from several texts to support an analysis. It also includes the ability to gather and organize information, assess the credibility, accuracy, and usefulness of each source in answering the research question, noting any discrepancies among the data collected.

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Literacy/English Language Arts (cont.)

Level 6: High Adult Secondary (cont.)

Speaking and Listening: Individuals ready to exit the High Adult Secondary level demonstrate flexibility, integrity, and initiative when collaborating as an effective member of a team. They are able to manage their time and other resources wisely in order to contribute to the team's overarching goal(s) and meet the agreed upon deadlines. This includes the ability to exercise leadership, resolve conflicts as they arise, and pose and respond to questions that relate the current discussion to broader themes or larger ideas. They are able to express alternative views clearly and persuasively, verify or challenge others' ideas and conclusions, and think creatively and critically in light of the evidence and reasoning presented. Just as in writing, individuals are able to evaluate a speaker's point of view, stance, premises, evidence, reasoning, rhetoric, and tone. They also are able to present their own findings and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning, making strategic use of digital media Individuals adapt their speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

Language: Individuals ready to exit the High Adult Secondary level demonstrate strong control of English grammar, usage, and mechanics and use these elements to enhance the presentation of ideas both in speech and writing. This includes the use of parallel structure and the correct use of various types of phrases and clauses to convey specific meanings. They are able to adapt their speech to a variety of contexts and tasks when indicated. The meaning of their written and oral communications is clear. Individuals are able to determine the meaning of unknown and multiple-meaning words and phrases as they are used in level-appropriate complex texts through context clues, knowledge of affixes and roots, and use of reference materials.

Literacy/English Language Arts (cont.)

Level 6: High Adult Secondary (cont.)

Exhibit B.1. Quantitative Analysis Chart for Determining Text Complexity[7]

CCR Levels of Learning	ATOS	Degrees of Reading Power	Flesch-Kincaid	The Lexile Framework	Reading Maturity
B (Level 2)	2.75–5.14	42–54	1.98–5.34	420–820	3.53–6.13
C (Level 3)	4.97–7.03	52– 60	4.51–7.73	740–1010	5.42–7.92
D (Level 4)	7.00–9.98	57–67	6.51–10.34	925–1185	7.04–9.57
E (Level 5)	9.67–12.01	62–72	8.32–12.12	1050–1335	8.41–10.81
E (Level 6)	11.20–4.10	67–74	10.34–14.2	1185–1385	9.57–12.00

[7]This chart only identifies text complexity or levels B through E. At level A, students are just learning how to read, so it is not appropriate to focus on the complexity of the text until level B.

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Mathematics

Introduction and Process

The EFL Descriptors for Mathematics also use the CCR as the foundation. They are intended to guide both teaching and assessment for adult learners. While these narrative descriptors address the most critical concepts for adult learners (as defined in the Major Work of the Level), there are additional concepts found in the CCR standards that support the major work for each level, and that are included in these descriptors. Lesson plans and assessment items for adult learners should be based on the full text of the CCR standards for each level, using these critical concepts as the foundation for lesson development and assessment.

The mathematics descriptors are divided into six educational functioning levels. The levels are Beginning Literacy (corresponding to Level A of the CCR); Beginning Basic (corresponding to Level B of the CCR); Low Intermediate (corresponding to Level C of the CCR); Middle Intermediate (corresponding to part of the Level D CCR), High Intermediate (corresponding to the remainder of the Level D CCR); and Adult Secondary (corresponding to Level E of the CCR). Each of the levels corresponds roughly to two grade levels, in K-12 terms, except for Level E, which combines the critical concepts of all of grades 9 through 12. Within each level the descriptors are further divided by domain: *The Mathematical Practices, Number Sense and Operations, Algebraic Thinking, Geometry (and Measurement), and Data Analysis (Statistics and Probability).*

The descriptors do not provide a complete or comprehensive delineation of all of the skills at any given level but provide examples of the most critical concepts and skills for the level to guide assessment and instruction. Assessment of the Mathematical Practice descriptors are best performed in the classroom using assessments that could be formative or summative and may be informal. It should be noted that mathematics placement decisions should take into account the reading level of the adult student. Verbally presented application problems at all mathematics levels require a minimum reading level.

Level 1: Beginning Literacy

The Mathematical Practices: Students prepared to exit this level are able to decipher a simple problem presented in a context and reason about and apply correct units to the results. They can visualize a situation using manipulatives or drawings and explain their processes and results using mathematical terms and symbols appropriate for the level. They recognize errors in the work and reasoning of others. They are able to strategically select and use appropriate tools to aid in their work such as pencil/paper, measuring devices, and/or manipulatives. They can see patterns and structure in sets of numbers and geometric shapes and use those insights to work more efficiently.

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Mathematics (cont.)

Level 1: Beginning Literacy (cont.)

Number Sense and Operations: Students prepared to exit this level have an understanding of whole number place value for tens and ones and are able to use their understanding of place value to compare two-digit numbers. They are able to add whole numbers within 100 and explain their reasoning, e.g., using concrete models or drawings and strategies based on place value and/or properties of operations. They are able to apply their knowledge of whole number addition and subtraction to represent and solve word problems that call for addition of three whole numbers whose sum is less than 20 by using such problem-solving tools as objects, drawings, and/or simple equations.

Algebraic Thinking: Students prepared to exit this level understand and apply the properties of operations to addition and subtraction problems. They understand the relationship between the two operations and can determine the unknown number in addition or subtraction equations.

Geometry and Measurement: Students prepared to exit this level can analyze and compare 2-dimensional and 3-dimensional shapes based on their attributes, such as their shape, size, orientation, the number of sides and/or vertices (angles), or the lengths of their sides. They can reason with two-dimensional shapes (e.g., quadrilaterals and half-and quarter-circles) and with three-dimensional shapes (e.g., right prisms, cones, and cylinders) to create composite shapes. They are able to measure the length of an object as a whole number of units, which are not necessarily standard units, for example measuring the length of a pencil using a paper clip as the length unit.

Data Analysis: Students prepared to exit this level are able to organize, represent, and interpret simple data sets (e.g., lists of numbers, shapes, or items) using up to three categories. They can answer basic questions related to the total number of data points in a set and the number of data points in each category and can compare the number of data points in the different categories.

Level 2: Beginning Basic

The Mathematical Practices: Students prepared to exit this level are able to decipher two-step problems presented in a context, visualizing a situation using diagrams or sketches, and reasoning about and applying the correct units and the proper degree of precision to the results. They can explain their processes and results using mathematical terms and symbols appropriate for the level and recognize errors in the reasoning of others. They strategically select and use the appropriate tools to aid in their work such as pencil/paper, measuring devices, manipulatives, and/or calculators. They are able to see patterns and structure in sets of numbers, including in multiplication or addition tables, and use those insights to work more efficiently.

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Mathematics (cont.)

Level 2: Beginning Basic (cont.)

Number Sense and Operations: Students prepared to exit this level understand place value for whole numbers to 1000 and can use that understanding to read, write, count, compare, and round three-digit whole numbers to the nearest 10 or 100. They are able to compute fluently with all four operations with whole numbers within 100. They use place value and properties of operations to explain why addition and subtraction strategies work and can demonstrate an understanding of the inverse relationship between multiplication and division. They can solve one-and two-step word problems involving all four operations within 100 and identify and explain arithmetic patterns. They have an understanding of fractions, especially unit fractions, and can represent simple fractions on a number line. They understand and can explain equivalence of fractions, can recognize and generate simple equivalent fractions, and can compare two fractions with the same numerator or denominator by reasoning about their size.

Algebraic Thinking: Students prepared to exit this level apply the properties of operations to multiplication and division of whole numbers. They understand the relationship between multiplication and division and can determine the unknown number in multiplication or division equations.

Geometry and Measurement: Students prepared to exit this level are able to reason about geometric shapes and their attributes. They can demonstrate an understanding that different shapes might share common attributes (e.g., four sides) and can compare and classify two-dimensional shapes, particularly quadrilaterals. They are able to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole. They can use common U.S. Customary and metric units for linear measurements (e.g., inches, feet, centimeters, and meters) and solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. They understand the concept of area and can relate it to addition and multiplication to solve real-world problems. They also understand, and can solve, real-world and mathematical problems involving perimeter of polygons.

Data Analysis: Students prepared to exit this level are able to draw and interpret simple graphs (e.g., bar graphs, picture graphs, and number line diagrams) including scaled bar and picture graphs. They can solve one-and two-step problems using scaled bar graphs. They can generate measurement data by measuring lengths to the nearest half-and quarter-inch and display that data by making a line plot marked off in appropriate units.

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Mathematics (cont.)

Level 3: Low Intermediate

The Mathematical Practices: Students prepared to exit this level are able to decipher multi-step problems presented in a context and reason about and apply the correct units and the proper degree of precision to the results. They can visualize a situation using diagrams or sketches, see multiple strategies for solving a problem, explain their processes and results, and recognize errors in the work and reasoning of others. They can express themselves using mathematical terms and notation appropriate for the level and can strategically select and use tools to aid in their work, such as pencil/paper, measuring devices, and/or technology. They are able to see patterns and structure in sets of numbers and geometric shapes and use those insights to work more efficiently.

Number Sense and Operations: Students prepared to exit this level understand place value for both multi-digit whole numbers and decimals to thousandths, and use their understanding to read, write, compare, and round decimals. They are able to use their place value understanding and properties of operations to fluently perform operations with multi-digit whole numbers and decimals. They can find common factors, common multiples, and understand fraction concepts, including fraction equivalence and comparison. They can add, subtract, multiply and divide with fractions and mixed numbers. They are able to solve multi-step word problems posed with whole numbers and fractions using the four operations. They also have an understanding of ratio concepts and can use ratio language to describe a relationship between two quantities, including the concept of a unit rate associated with a ratio.

Algebraic Thinking: Students prepared to exit this level are able to apply and extend their understanding of arithmetic to algebraic expressions, using a symbol to represent an unknown value. They can write, evaluate, and interpret expressions and equations, including expressions that arise from formulas used in real-world problems. They can solve real-world and mathematical problems by writing and solving simple one-variable equations and write a simple inequality that represents a constraint or condition in a real-world or mathematical problem. They can represent and analyze quantitative relationships between dependent and independent variables.

Mathematics (cont.)

Level 3: Low Intermediate (cont.)

Geometry and Measurement: Students prepared to exit this level have a basic understanding of the coordinate plane and can plot points (i.e., ordered pairs) and place polygons in the coordinate plane to solve real-world and mathematical problems. They can classify two-dimensional shapes and use formulas to determine the area of two-dimensional shapes such as triangles and quadrilaterals. They can determine the surface area of three-dimensional shapes composed of rectangles and triangles and find the volume of right rectangular prisms. They are able to convert like measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions to solve multi-step, real-world problems. They are also able to solve measurement word problems (such as those that involve area, perimeter, distance, time intervals, liquid volumes, mass, and money) that involve simple fractions or decimals.

Data Analysis and Statistics: Students prepared to exit this level have a basic conceptual understanding of statistical variability, including such concepts as center, spread, and the overall shape of a distribution of data. They can present data using displays such as dot plots, histograms, and box plots.

Level 4: Middle Intermediate

The Mathematical Practices: Students prepared to exit this level are able to think critically, determine an efficient strategy (from among multiple possible strategies) for solving a multi-step problem, and persevere in solving challenging problems. They can express themselves using the mathematical terms and notation appropriate to the level. They are able to defend their findings and critique the reasoning of others. They are accurate in their calculations and use estimation strategies to assess the reasonableness of their results. They can create algebraic and geometric models and use them to answer questions and solve problems. They can strategically select and use tools to aid in their work, such as pencil/paper, measuring devices, calculators, and/or spreadsheets. They are able to see patterns and structure in number sets, data, expressions and equations, and geometric figures.

Number Sense and Operations: Students prepared to exit this level have an understanding of the rational number system, including how rational numbers can be represented on a number line and pairs of rational numbers can be represented on a coordinate plane. They can apply the concept of absolute value to find horizontal and vertical distances. They are able to apply the properties of integer exponents and evaluate, estimate, and compare simple square roots and cube roots. Individuals at this level also understand ratio, rate, and percent concepts, as well as proportional relationships.

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Mathematics (cont.)

Level 4: Middle Intermediate (cont.)

Algebraic Thinking: Students prepared to exit this level understand the connections between proportional relationships, lines, and linear equations. They understand numerical and algebraic expressions, and equations and are able to use them to solve real-world and mathematical problems. They are able to analyze and solve linear equations and pairs of simultaneous linear equations. Individuals at this level are able to define, interpret, and compare linear functions.

Geometry: Students prepared to exit this level can solve real-world and mathematical problems that involve angle measure, circumference, and area of 2-dimensional figures. They are able to solve problems involving scale drawings of 2-dimensional geometric figures. They understand the concepts of congruence and similarity with respect to 2-dimensional figures. They understand the Pythagorean theorem and can apply it to determine missing lengths in right triangles.

Statistics and Probability: Students prepared to exit this level can summarize and describe numerical data sets in relation to their context, including determining measures of center and variability and describing patterns and/or striking deviations from patterns. They understand and can apply the concept of chance or probability. They are able to use scatter plots for bivariate measurement data to describe patterns of association between two quantities (such as clustering, outliers, positive or negative association, linear or non-linear association).

Level 5: High Intermediate

The Mathematical Practices: Students prepared to exit this level are able to think critically, determine an efficient strategy (from among multiple possible strategies) for solving a multi-step problem, and persevere in solving challenging problems. They can reason quantitatively, including using units as a way to solve problems. They are able to defend their findings and critique the reasoning of others. They are accurate in their calculations and use estimation strategies to assess the reasonableness of their results. They can create algebraic and geometric models and use them to answer questions and solve problems. They can strategically select and use tools to aid in their work, such as graphing calculators, spreadsheets, and/or computer software. They are able to make generalizations based on patterns and structure they discover in number sets, data, expressions and equations, and geometric figures and use these insights to work more efficiently.

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Mathematics (cont.)

Level 5: High Intermediate (cont.)

Number Sense and Operations: Students prepared to exit this level can reason about and solve real-world and mathematical problems that involve the four operations with rational numbers. They can apply the concept of absolute value to demonstrate on a number line their understanding of addition and subtraction with negative and positive rational numbers. Individuals at this level can apply ratio and percent concepts, including using rates and proportional relationships to solve multi-step real-world and mathematical problems.

Algebraic Thinking: Students prepared to exit this level are able to use algebraic and graphical representations to solve real-world and mathematical problems, involving linear equations, inequalities, and pairs of simultaneous linear equations. Individuals at this level are able to use linear functions to describe, analyze, and model linear relationships between quantities.

Geometry: Students prepared to exit this level can solve real-world and mathematical problems that involve volume and surface area of 3-dimensional geometric figures. They can use informal arguments to establish facts about various angle relationships such as the relationships between angles created when parallel lines are cut by a transversal. They apply the Pythagorean theorem to determine lengths in real-world contexts and distances in the coordinate plane.

Statistics and Probability: Students prepared to exit this level can use random sampling to draw inferences about a population and are able to draw informal comparative inferences about two populations using measures of center and measures of variability for numerical data from random samples. They can develop, use, and evaluate probability models. They are able to use scatter plots for bivariate measurement data to interpret patterns of association between two quantities (such as clustering, outliers, positive or negative association, linear or non-linear association) and a 2-way table to summarize and interpret bivariate categorical data.

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Mathematics (cont.)

Level 6: Adult Secondary

The Mathematical Practices: Students prepared to exit this level are able to think critically, make assumptions based on a situation, select an efficient strategy from multiple possible problem-solving strategies, plan a solution pathway, and make adjustments as needed when solving problems. They persevere in solving challenging problems, including considering analogous, simpler problems as a way to solving a more complex one. They can reason quantitatively, including through the use of units, and can express themselves using the precise definitions and mathematical terms and notation appropriate to the level. They are accurate in their calculations, use an appropriate level of precision in finding solutions and reporting results, and use estimation strategies to assess the reasonableness of their results. They are able to make conjectures, use logic to defend their conclusions, and can detect faulty thinking and errors caused by improper use of technology. They can create algebraic and geometric models and use them to answer questions, interpret data, make predictions, and solve problems. They can strategically select and use tools, such as measuring devices, calculators, spreadsheets, and/or computer software, to aid in their work. They are able to see patterns and structure in calculations, expressions, and equations and make connections to algebraic generalizations, which they use to work more efficiently.

Number Sense and Operations: Students prepared to exit this level have extended their number sense to include irrational numbers, radicals, and rational exponents and understand and use the set of real numbers. They are able to assess the reasonableness of calculation results based on the limitations of technology or given units and quantities and give results with the appropriate degree of precision.

Algebraic Thinking: Students prepared to exit this level understand the structure of expressions and can use that structure to rewrite linear, exponential, and quadratic expressions. They can add, subtract, and multiply polynomials that involve linear and/or quadratic expressions. They are also able to create linear equations and inequalities and quadratic and simple exponential equations to represent relationships between quantities and can represent constraints by linear equations or inequalities, or by systems of linear equations and/or inequalities. They can interpret the structure of polynomial and rational expressions and use that structure to identify ways to rewrite and operate accurately with them. They can add, subtract, and multiply polynomials that extend beyond quadratics. They are able to rearrange formulas to highlight a quantity of interest, for example rearranging Ohm's law, $V = IR$, to highlight resistance R. They are also able to create equations and inequalities representing relationships between quantities, including those that extend beyond equations or inequalities arising from linear, quadratic, and simple exponential functions to include those arising from simple rational functions. They are able to use these equations/inequalities to solve problems both algebraically and graphically. They can solve linear equations and inequalities; systems of linear equations; quadratic, simple rational, and radical equations in one variable; and recognize how and when extraneous solutions may arise.

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Mathematics (cont.)

Level 6: Adult Secondary (cont.)

Students prepared to exit this level also have a basic understanding of functions, can use function notation properly, and use such notation to write a function describing a relationship between two quantities. They are able to evaluate functions for inputs in their domains and interpret linear, quadratic, and exponential functions that arise in applications in terms of the context. They are able to construct, graph, compare, and interpret functions (including, but not limited to, linear, quadratic, and exponential). They can sketch graphs given a verbal description of the relationship and identify and interpret key features of the graphs of functions that arise in applications in a context. They are able to select or define a function that appropriately models a relationship and to compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal description).

Geometry: Students prepared to exit this level can solve problems involving similarity and congruence criteria for triangles and use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. They can apply the concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTU's per cubic foot).

Data Analysis and Statistics: Students prepared to exit this level can summarize, represent, and interpret data based on two categorical and quantitative variables, including by using frequency tables. They can compare data sets by looking at commonalities and differences in shape, center, and spread. They can recognize possible associations and trends in data, in particular in linear models, and distinguish between correlation and causation. They interpret one-and two-variable data, including those with linear and non-linear relationships. They interpret the slope (rate of change) and intercept (constant term) for a line of best fit and in the context of the data. They understand and account for extreme points of data in their analysis and interpret relative frequencies (joint, marginal and conditional).

New Educational Functioning Level Descriptors for English as a Second Language (ESL)[8]

Introduction

In the National Reporting System for Adult Education (NRS), the Educational Functioning Level (EFL) descriptors are intended to guide teaching and assessment for adult learners. The descriptors for English as a second language (ESL) are divided into six educational functioning levels: Beginning ESL Literacy, Low Beginning ESL, High Beginning ESL, Low Intermediate ESL, High Intermediate ESL, and Advanced ESL. The descriptors do not provide a complete or comprehensive delineation of all of the skills at any given level but rather provide a description of the most critical concepts and skills for the level.

Although these narrative descriptors address the most critical concepts for assessment and instruction for adult learners, lesson plans and test items should be based on additional critical concepts from state instructional frameworks and standards, as appropriate for the learner and state requirements.

The EFLs for ESL are organized into three modalities: interpretive, productive, and interactive. These modalities include the domains of reading, writing, speaking, and listening. These modalities allow for an integrated or holistic approach to teaching and assessing English language learners (ELLs) in the adult education setting.

- Interpretive refers to the learner's ability to process, understand, interpret, or engage with level-appropriate literary and informational written and spoken text to construct meaning. For example, an ELL exiting from the Low Intermediate ESL classroom should be able to, with support, explain the reasons an author or a speaker gives to support a claim and identify one or two reasons an author or a speaker gives to support the main point.
- Productive refers to the learner's ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning. For example, an ELL exiting from the Low Beginning ESL classroom should be able to, with support, communicate information and feelings about familiar texts, topics, and experiences.
- Interactive refers to the learner's ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in, and transmitting meaning. For example, ELLs exiting from the High Beginning ESL classroom should be able to, with support, gather information from provided print and digital sources, record information in simple notes, and summarize data and information.

[8]These ESL descriptors are included in the AEFLA information collection (OMB control number 1830-0027). They will not be implemented until the Secretary of Education has determined that there is at least one assessment that is aligned with these descriptors and is suitable for use in the NRS.

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New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Text Complexity and Familiar Topics

Teachers and assessment developers must select appropriately complex literary and informational texts, topics, and events to prepare learners for success. Complexity should show progress within EFLs and in successive levels that reflect increasingly complex and cognitively demanding language structures, academic vocabulary, and concepts.

Language in the revised NRS EFLs for ESL calls for progressive complexity without being prescriptive about the specific complexity measures at each EFL. Terminology in the EFLs such as emerging, developing, increasing, and growing are guides to indicate the needed progression of complexity from level to level.[9]

Instruction and assessment also should involve a progression of topics, from the more familiar to substantive and academic topics, with increasing levels of complexity within and across levels. Teachers and test developers are encouraged to refer to the guiding principles found in the English Language Proficiency Standards for Adult Education. The guiding principles recommend that instruction also include the use of digital tools and resources; academic language; a variety of informational texts and content areas, including science, technology, engineering, and mathematics; and college and career readiness skills as appropriate to learners at a given level.

[9]Additional guidance about text complexity in adult education may be found in the College and Career Readiness Standards for Adult Education, "Appendix D—Understanding Text Complexity."

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 1: Beginning ESL Literacy

Interpretive: The ability to process, understand, interpret and/or engage with level-appropriate literary and informational written and spoken text to construct meaning (1, 6, 7, 8).

ELLs ready to exit the Beginning ESL Literacy Level are able to, with prompting and support (including context, and visual aids), identify a few key words and phrases from read alouds, visual images, and oral presentations using a very limited set of strategies.

ELLs ready to exit this level can, with prompting and support (including context and visual aids), recognize the meaning of a few frequently occurring words and phrases in simple oral presentations and read alouds about familiar topics, experiences, and events. They can recognize the meaning of some words learned through conversations, reading, and being read to.

Productive: The ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning (3, 4, 7, 9, 10).

ELLs ready to exit this level are able to, with prompting and support (including context and visual aids), communicate simple information or feelings about familiar topics, events, or experiences. They can express a preference or opinion about a familiar topic.

ELLs ready to exit this level are able to show limited awareness of differences between informal and formal language use.

With support (including context and visual aids), ELLs ready to exit this level are able to recognize and use a small number of frequently occurring nouns and verbs, use a narrow range of vocabulary and syntactically simple sentences, and understand and respond to simple questions.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 1: Beginning ESL Literacy (cont.)

Interactive: The ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in, and transmitting meaning (2, 5).

ELLs ready to exit this level are able to, with limited involvement, participate in short conversations and written exchanges about familiar topics and in familiar contexts. They can respond to simple yes/no questions and some wh-questions.

ELLs ready to exit this level are able to, with prompting and support, participate in short, shared research projects, gather information from a few provided sources, and label some key information.

Level 2: Low Beginning ESL

(ELP Standards for AE Level 1)

Interpretive: The ability to process, understand, interpret and/or engage with level-appropriate literary and informational written and spoken text to construct meaning (1, 6, 7, 8).

ELLs ready to exit the Low Beginning ESL Level are able to identify a few key words and phrases in oral communications and simple spoken and written texts using a very limited set of strategies. They can recognize the meaning of some words learned through conversations, reading, and being read to.

ELLs ready to exit this level are able to, with support, identify a point an author or a speaker makes.

Relying heavily on context, questioning, and knowledge of morphology in their native language(s), ELLs ready to exit this level are able to recognize the meaning of a few frequently occurring words, simple phrases, and formulaic expressions in spoken and written texts about familiar topics, experiences, or events.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 2: Low Beginning ESL (cont.)

Productive: The ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning (3, 4, 7, 9, 10).

ELLs ready to exit this level are able to, with support, communicate information and feelings about familiar texts, topics, and experiences.

ELLs ready to exit this level are able to express an opinion about a familiar topic, experience, or event and give a reason for the opinion.

ELLs ready to exit this level are able to show emerging awareness of differences between informal and formal language use.

ELLs ready to exit this level are able to, with support, use a narrow range of vocabulary and syntactically simple sentences. They can, with support, recognize and use a small number of frequently occurring nouns, noun phrases, verbs, conjunctions, and prepositions and understand and respond to simple questions.

Interactive: The ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in and transmitting meaning (2, 5).

ELLs ready to exit this level are able to actively listen to others. They can participate in short conversations and written exchanges about familiar topics and in familiar contexts. They can present simple information and respond to simple yes/no questions and some wh-questions.

ELLs ready to exit this level are able to, with support, carry out short, shared research projects. They can, with support, gather information from a few provided print and digital sources, label collected information, experiences, or events, and recall information from experience or from a provided source.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 3: High Beginning ESL

(ELP Standards for AE Level 2)

Interpretive: The ability to process, understand, interpret and/or engage with level-appropriate literary and informational written and spoken text to construct meaning (1, 6, 8).

ELLs ready to exit the High Beginning ESL Level are able to identify the main topic in oral presentations and simple spoken and written texts and retell a few key details using an emerging set of strategies.

ELLs ready to exit this level are able to, with support, identify the main argument an author or speaker makes. They can, with support, identify one reason an author or a speaker gives to support the argument.

ELLs ready to exit this level are able to determine the meaning of frequently occurring words, phrases, and expressions in spoken and written texts about familiar topics, experiences, or events.

Productive: The ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning (3, 4, 7, 9, 10).

ELLs ready to exit this level are able to, with support, deliver short oral presentations and compose simple written narratives or informational texts about familiar texts, topics, experiences, or events.

ELLs ready to exit this level are able to construct a claim about familiar topics, experiences, or events. They can introduce a familiar topic, experience, or event, give a reason to support a claim, and provide a concluding statement.

ELLs ready to exit this level are able to, with support, recount a short sequence of events in order. They can, with support, introduce an informational topic, provide one or two facts about the topic, and use common linking words to connect events and ideas.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 3: High Beginning ESL (cont.)

ELLs ready to exit this level are able to show increasing awareness of differences between informal and formal language use. They can adapt language choices to task and audience with emerging control in various social and academic contexts.

ELLs ready to exit this level can begin to use some frequently occurring general academic and content-specific words. ELLs ready to exit this level are able to, with support, use frequently occurring verbs, nouns, adjectives, adverbs, prepositions, and conjunctions. They can, with support, produce simple and compound sentences.

Interactive: The ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in and transmitting meaning (2, 5).

ELLs ready to exit this level are able to participate in conversations and written exchanges about familiar topics and texts. They can present information and ideas, appropriately take turns in interactions with others, and respond to simple questions and wh-questions.

ELLs ready to exit this level are able to, with support, carry out short individual or shared research projects. They can, with support, gather information from provided print and digital sources, record information in simple notes, and summarize data and information.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 4: Low Intermediate ESL

(ELP Standards for AE Level 3)

Interpretive: The ability to process, understand, interpret and/or engage with level-appropriate literary and informational written and spoken text to construct meaning (1, 6, 8).

ELLs ready to exit the Low Intermediate ESL Level are able to determine a central idea or theme in oral presentations and spoken and written texts, retell key details, answer questions about key details, explain how the theme is developed by specific details in texts, and summarize part of a text using a developing set of strategies.

ELLs ready to exit this level are able to, with support, explain the reasons an author or a speaker gives to support a claim and identify one or two reasons an author or a speaker gives to support the main point.

Using context, questioning, and a developing knowledge of English and their native language(s)' morphology, ELLs ready to exit this level are able to determine the meaning of general academic and content-specific words and phrases and frequently occurring expressions in spoken and written texts about familiar topics, experiences, or events.

Productive: The ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning (3, 4, 7, 9, 10).

ELLs ready to exit this level are able to, with support, deliver short oral presentations and compose written informational texts about familiar texts, topics, or events. This includes developing the topic with a few details.

ELLs ready to exit this level are able to construct a claim about familiar topics. They can introduce the topic, provide sufficient reasons or facts to support the claim, and provide a concluding statement. When producing written and spoken texts, ELLs ready to exit this level are able to, with support, recount a sequence of events, with a beginning, middle, and end. They can introduce and develop an informational topic with facts and details, use common transitional words and phrases to connect events, ideas, and opinions, and provide a conclusion.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 4: Low Intermediate ESL (cont.)

ELLs ready to exit this level are able to adapt language choices and style according to purpose, task, and audience with developing ease in various social and academic contexts and show developing control of style and tone in spoken and written texts.

In their spoken and written texts, ELLs ready to exit this level can use an increasing number of general academic and content-specific words and expressions.

ELLs ready to exit this level are able to, with support, use simple phrases and clauses. They can produce and expand simple, compound, and a few complex sentences.

Interactive: The ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in and transmitting meaning (2, 5).

ELLs ready to exit this level are able to participate in conversations, discussions, and written exchanges about familiar topics, texts, and issues. They can build on the ideas of others, express their own ideas, ask and answer relevant questions, add relevant information and evidence, restate some of the key ideas expressed, follow rules for discussion, and ask questions to gain information or clarify understanding.

ELLs ready to exit this level are able to, with support, carry out short research projects to answer a question. They can, with support, gather information from multiple provided print and digital sources, paraphrase key information in a short written or oral report, include illustrations, diagrams, or other graphics as appropriate, and provide a list of sources.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 5: High Intermediate ESL

(ELP Standards for AE Level 4)

Interpretive: The ability to process, understand, interpret and/or engage with level-appropriate literary and informational written and spoken text to construct meaning (1, 6, 8).

ELLs ready to exit the High intermediate ESL Level are able to determine a central idea or theme in oral presentations and spoken and written texts using an increasing range of strategies. They can analyze the development of the themes/ideas, cite specific details and evidence from texts to support the analysis, and summarize a text.

ELLs ready to exit this level are able to analyze the reasoning in persuasive spoken and written texts and determine whether the evidence is sufficient to support the claim. They can cite textual evidence to support the analysis.

Using context, questioning, and an increasing knowledge of English morphology, ELLs ready to exit this level can determine the meaning of general academic and content-specific words and phrases, figurative and connotative language, and a growing number of idiomatic expressions in spoken and written texts about a variety of topics, experiences, or events.

Productive: The ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning (3, 4, 7, 9, 10).

ELLs ready to exit this level are able to deliver oral presentations and compose written informational texts about a variety of texts, topics, or events. This includes developing the topic with some relevant details, concepts, examples, and information and integrating graphics or multimedia when appropriate.

ELLs ready to exit this level are able to construct a claim about a variety of topics. They can construct a claim, introduce the topic, provide logically ordered reasons or facts that effectively support the claim, and provide a concluding statement.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 5: High Intermediate ESL (cont.)

When producing written and spoken texts, ELLs ready to exit this level can recount a longer, more detailed sequence of events or steps in a process, with a clear sequential or chronological structure. They can introduce and develop an informational topic with facts, details, and evidence, and provide a concluding section or statement.

ELLs ready to exit this level can also adapt language choices and style according to purpose, task, and audience in various social and academic contexts and adopt and maintain a formal and informal style and tone in spoken and written texts, as appropriate.

In their spoken and written texts, ELLs ready to exit this level can also use a wider range of complex general academic and content-specific words and phrases.

ELLs ready to exit this level will use increasingly complex phrases and clauses, produce and expand simple, compound, and complex sentences, and use a variety of more complex transitions to link the major sections of speech and text and to clarify relationships among events and ideas.

Interactive: The ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in and transmitting meaning (2, 5).

ELLs ready to exit this level are able to participate in conversations, discussions, and written exchanges about a range of topics, texts, and issues. They can build on the ideas of others, express his or her own ideas, clearly support points with specific and relevant evidence, ask and answer questions to clarify ideas and conclusions, and summarize the key points expressed.

ELLs ready to exit this level are able to carry out both short and more sustained research projects to answer a question, gather information from multiple print and digital sources, evaluate the reliability of each source, and use search terms effectively. They are able to synthesize information from multiple print and digital sources, integrate information into an organized oral or written report, include illustrations, diagrams, or other graphics as appropriate, and cite sources appropriately.

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New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 6: Advanced ESL

(ELP Standards for AE Level 5)

Interpretive: The ability to process, understand, interpret and/or engage with level-appropriate literary and informational written and spoken text to construct meaning (1, 6, 8).

ELLs ready to exit the Advanced ESL Level are able to determine central ideas or themes in oral presentations and spoken and written texts using a wide range of strategies. They can analyze the development of the themes/ideas, cite specific details and evidence from texts to support the analysis, and summarize a text.

ELLs ready to exit this level are able to analyze and evaluate the reasoning in persuasive spoken and written texts, determine whether the evidence is sufficient to support the claim, and cite specific textual evidence to thoroughly support the analysis.

Using context, questioning, and consistent knowledge of English morphology, ELLs ready to exit this level are able to determine the meaning of general academic and content-specific words and phrases, figurative and connotative language, and idiomatic expressions in spoken and written texts about a variety of topics, experiences, or events.

Productive: The ability to produce level-appropriate written and spoken text such that it meaningfully transmits meaning (3, 4, 7, 9, 10).

ELLs ready to exit this level are able to deliver oral presentations and compose written informational texts about a variety of texts, topics, or events. They can fully develop the topic with relevant details, concepts, examples, and information, and integrate graphics or multimedia when appropriate.

ELLs ready to exit this level are able to construct a substantive claim about a variety of topics. They can introduce the claim and distinguish it from a counter-claim. They are able to provide logically ordered and relevant reasons and evidence to support the claim and to refute the counter-claim and provide a conclusion that summarizes the argument presented.

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New Educational Functioning Level Descriptors for English as a Second Language (ESL) (cont.)

Level 6: Advanced ESL (cont.)

ELLs ready to exit this level are able to recount a complex and detailed sequence of events or steps in a process, with an effective sequential or chronological order. They can introduce and effectively develop an informational topic with facts, details, and evidence, use complex and varied transitions to link the major sections of speech and text and to clarify relationships among events and ideas, and provide a concluding section or statement.

ELLs ready to exit this level are able to adapt language choices and style according to purpose, task, and audience with ease in various social and academic contexts. They can employ both formal and more informal styles and tones effectively in spoken and written texts, as appropriate.

In their spoken and written texts, ELLs ready to exit this level can use a wide variety of complex general academic and content-specific words and phrases.

ELLs ready to exit this level will use complex phrases and clauses and produce and expand simple, compound, and complex sentences.

Interactive: The ability to process and produce level-appropriate written and spoken text interactively with the purpose of understanding, interpreting, engaging in and transmitting meaning (2, 5).

ELLs ready to exit this level are able to participate in conversations, extended discussions, and written exchanges about a range of substantive topics, texts, and issues. They can build on the ideas of others, express their own ideas clearly and persuasively, refer to specific and relevant evidence from texts or research to support their ideas, ask and answer questions that probe reasoning and claims, and summarize the key points and evidence discussed.

ELLs ready to exit this level are able to carry out both short and more sustained research projects to answer a question or solve a problem. They can gather information from multiple print and digital sources, evaluate the reliability of each source, and use advanced search terms effectively. They can synthesize information from multiple print and digital sources, analyze and integrate information into clearly organized spoken and written texts, include illustrations, diagrams, or other graphics as appropriate, and cite sources appropriately.

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APPENDIX B

International Society for Technology in Education Standards for Students

Introduction

The International Society for Technology in Education (ISTE)[1] is a nonprofit organization serving educators who are interested in the use of technology in education. ISTE has developed technology standards for students, educators, and educational leaders which describe the skills and knowledge needed to impact learning, teaching, and educational leadership.

The ISTE Standards for Students[2] are excerpted here in response to feedback from the members of the work groups, including representatives from both academia and industry, who reviewed the 2014 Content Standards and recommended a stronger emphasis on technology skills, especially for problem solving.

Technology in education has moved away from learning how to use technology tools, where technology instruction previously focused on how to use various software applications. It is more important to know how to use technology to apply the knowledge and skills that are described by our content standards.

The ISTE standards, if achieved, will enable adult education students to take better charge of their own learning and to build knowledge in ways that will support the goals that they set for themselves.

[1] International Society for Technology in Education, www.iste.org.
[2] International Society for Technology in Education, www.iste.org/standards/for-students.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

1. Empowered Learner[3]

Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

1a -- Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process itself to improve learning outcomes.
1b -- Students build networks and customize their learning environments in ways that support the learning process.
1c -- Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
1d -- Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies, and are able to transfer their knowledge to explore emerging technologies.

2. Digital Citizen

Students recognize the rights, responsibilities and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.

2a -- Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
2b -- Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.
2c -- Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
2d -- Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

[3] Excerpted from ISTE Standards for Students with permission for educational use, 2019 International Society for Technology in Education.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

3. Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others

3a -- Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
3b -- Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.
3c -- Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
3d -- Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories, and pursuing answers and solutions.

4. Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful, or imaginative solutions.

4a -- Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems.
4b -- Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
4c -- Students develop, test, and refine prototypes as part of a cyclical design process.
4d -- Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

5. Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

5a -- Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
5b -- Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
5c -- Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
5d -- Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

6. Creative Communicator

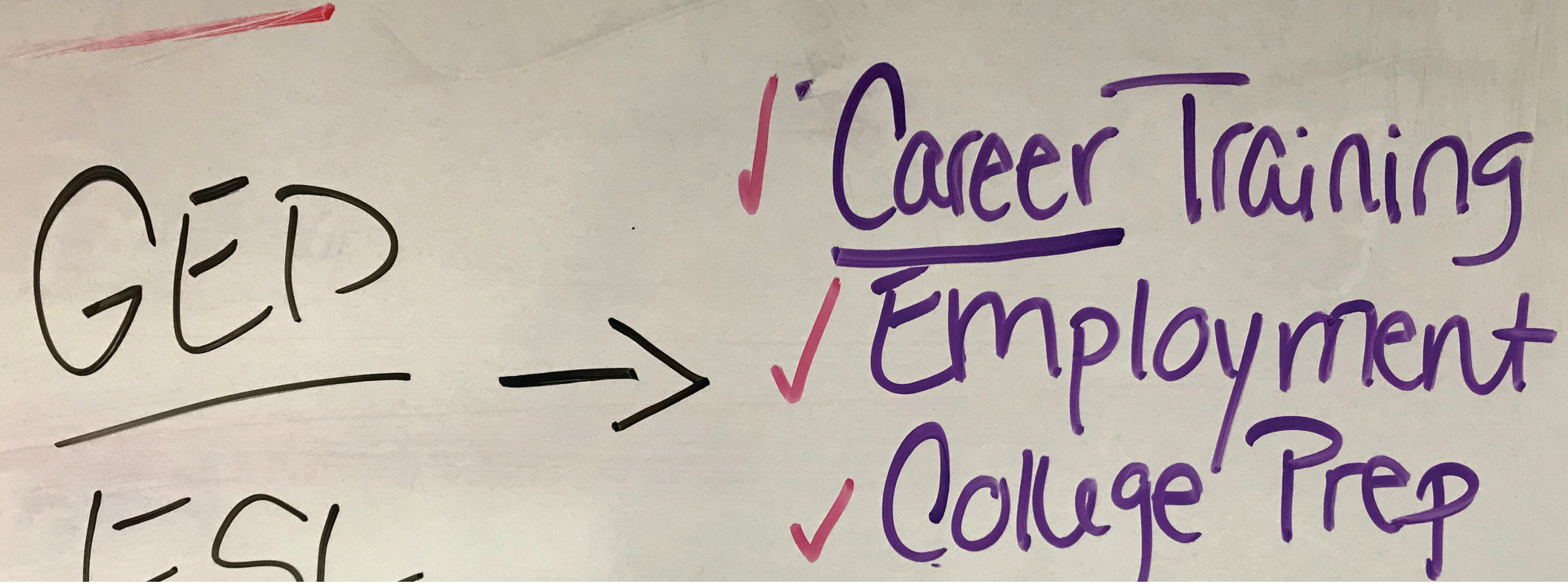
Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats, and digital media appropriate to their goals.

6a -- Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
6b -- Students create original works or responsibly repurpose or remix digital resources into new creations.
6c -- Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.
6d -- Students publish or present content that customizes the message and medium for their intended audiences.

7. Global Collaborator

Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

7a -- Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.
7b -- Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
7c -- Students contribute constructively to project teams, assuming various roles and responsibilities, to work effectively toward a common goal.
7d -- Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.



APPENDIX C

Acronyms

Acronyms

The acronyms listed in this appendix represent terms, concepts, organizations, and assessments that would likely appear in a discussion about content standards in Texas. Most of them are used in this document.

Complete definitions and general terms are located in the *Texas Adult Education and Literacy Guide* posted on the Adult Education & Literacy Program Overview of the Texas Workforce Commission web site at https://twc.texas.gov/files/partners/texas-ael-guide-twc.pdf or on the TRAIN PD web page on the TCALL web site at https://tcall.tamu.edu/AELDefinitions.html.

2014 GED . . . . . General Equivalency Development test (one of three assessments that serve as a basis for awarding a TxCHSE)

ABE . . . . . Adult Basic Education (basic skills development in reading, writing, mathematics, and problem solving through an eighth-grade proficiency level)

AEFLA . . . . . Adult Education and Family Literacy Act (Title II of the Workforce Innovation and Opportunity Act of 2014)

AEL . . . . . Adult Education & Literacy

ASE . . . . . Adult Secondary Education (instruction for learners with proficiency levels ranging from grades 9 to 12, designed for preparation for a high school credential or for transition to employment, workforce training, and/or college)

BEST/BEST Plus . . . . . Basic English Skills Test (one of several assessments for ESL approved by NRS)

BICS . . . . . Basic Interpersonal Communication Skills (basic communication skills for social situations)

CALP . . . . . Cognitive Academic Language Proficiency (listening, speaking, reading, and writing for academic purposes)

CASAS . . . . . Comprehensive Adult Student Assessment System (one of several assessments approved by NRS)

CCRS . . . . . College and Career Readiness Standards for Adult Education (federal standards based on Common Core)

CCSS . . . . . Common Core State Standards

CEFR . . . . . Common European Framework Reference for Languages (international standards for describing language ability)

Content Standards . . . . . Abbreviated in this document for Texas Adult Education and Literacy Content Standards, published in 2016

DE . . . . . Developmental Education

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Acronyms (cont.)

EFL . . . . . Educational Functioning Level
ELA . . . . . English Language Arts (one of three Content Areas addressed by Content Standards)
EL Civics . . . . . English Literacy and Civics
ELL . . . . . English Language Learner
ELP . . . . . English Language Proficiency
ELP Standards . . . . . English Language Proficiency Standards for Adult Education
EOC . . . . . End-of-Course Assessment (component of the STAAR for secondary education)
ESL . . . . . English as a Second Language (one of three Content Areas addressed by Content Standards)
GSE . . . . . Global Scale of English (European English language standards aligned to the Common European Framework Reference)
HiSET . . . . . High School Equivalency Test (one of three assessments that serve as a basis for awarding a TxCHSE)
IET . . . . . Integrated Education and Training
Integrated EL Civics . . . . Integrated English Literacy and Civics
ISTE . . . . . International Society for Technology in Education
ITEC Plan . . . . . Individual Training, Education and Career Plan
LEP . . . . . Limited English Proficient
LINCS . . . . . Literacy Information and Communication System
MSG . . . . . Measurable Skills Gain
NRS . . . . . National Reporting System
OCTAE . . . . . Office of Career, Technical, and Adult Education (agency within the U.S. Department of Education that oversees Adult Education)
O*NET . . . . . Occupational Information Network
PAL . . . . . Principles of Adult Learning
PD . . . . . Professional Development

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Acronyms (cont.)

PII. . . . . Personally Identifiable Information
SAIC. . . . . Standards Alignment to Industry Clusters (name of project to align 2016 AEL Content Standards to four key Texas industries)
SBE . . . . . Standards-Based Education
SBOE . . . . . State Board of Education
STAAR. . . . . State of Texas Assessments for Academic Readiness (assessments used by K-12 in Texas)
Standards 2.0 . . . . . Abbreviated in this document to refer to the revision of the 2016 Texas AEL Content Standards
SWG. . . . . Standards Work Group
TABE . . . . . Test of Adult Basic Education (one of several assessments for ABE/ASE approved by NRS)
TABE CLAS E . . . . . TABE Complete Language Assessment System - English (one of several assessments for ESL approved by NRS)
TAECSB . . . . . Texas Adult Education Content Standards and Benchmarks (an earlier version of Content Standards, released in 2008)
TANF . . . . . Temporary Assistance for Needy Families
TASC . . . . . Texas Assessment of Secondary Completion (one of three assessments that serve as a basis for awarding a TxCHSE)
TCALL. . . . . Texas Center for the Advancement of Literacy and Learning, located at Texas A&M University
TCCRS. . . . . Texas College and Career Readiness Standards
TEA . . . . . Texas Education Agency
TEAMS . . . . . Texas Educating Adults Management System (official database for Texas AEL data)
TEC . . . . . Texas Education Code
TEKS . . . . . Texas Essential Knowledge and Skills (Texas K12 Standards)
TESOL . . . . . Teachers of English to Speakers of Other Languages
THECB . . . . . Texas Higher Education Coordinating Board
TRAIN PD . . . . . The professional development provider for AEL, located at the Texas Center for the Advancement of Literacy and Learning, Texas A&M University.
TSIA. . . . . Texas Success Initiative Assessment (test required for most incoming college freshmen in Texas)

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Acronyms (cont.)

TWC . . . . . Texas Workforce Commission

TxCHSE . . . . . Texas Certificate of High School Equivalency (issued by TEA to examinees who successfully pass the 2014 GED®, the HiSET or the TASC)

TxState . . . . . Abbreviated in this document for Texas State University

WIOA . . . . . Workforce Innovation and Opportunity Act of 2014

APPENDIX D

In-Depth Description of the Development Process for the 2016 AEL Content Standards

Process Framework

The Texas Workforce Commission (TWC) contracted with Texas State University (TxState) to update the 2008 Texas Adult Education Content Standards and Benchmarks (TAECSB) and align them with the Texas College & Career Readiness Standards (TCCRS), the Texas Certificate of High School Equivalency (TxCHSE), and the Texas Success Initiative Assessment (TSIA). The contract period was from November 2015 to December 2016. The final version of the *Texas Adult Education & Literacy Content Standards* (Content Standards) was released in December 2016.

The development process mirrored the methodology used by the federal work group for the development of the College and Career Readiness Standards for Adult Education. While the methodology for standards development was the same as the federal process, the informing resources were different, prioritizing resources specific to Texas.

To support the project staff in anchoring their decisions in evidence, TWC identified specific guiding documents, including, but not limited to:

- the Texas College and Career Readiness Standards (TCCRS),
- the Texas Certificate of High School Equivalency (TxCHSE),
- the Texas Success Initiative Assessment (TSIA),
- the National Reporting Systems (NRS) guideline descriptors,
- recommendations from the content standards expert contracted by the Texas Education Agency (TEA),
- the College and Career Readiness Standards for Adult Education (CCRS),
- the State of Texas Assessments of Academic Readiness (STAAR) performance standards,
- work readiness skills or criteria recognized by the Board or private sectors employers,
- Teachers of English to Speakers of Other Languages (TESOL) standards for Adult Education programs, and
- the Comprehensive Adult Student Assessment Systems (CASAS) standards.

A second priority was to ensure that a broad base of Adult Education practitioners reviewed the draft Content Standards. The project team identified 15 people they believed would have interest and expertise in college and career readiness in English Language Arts (ELA), Mathematics, and English as a Second Language (ESL) to serve on the Standards Working Group (SWG). The membership of the SWG included representatives from community colleges, the Texas Education Agency, the Texas Higher Education Coordinating Board, independent school districts, community-based organizations, professional development providers and industries.

Process Framework (cont.)

Project staff also received feedback from 13 subject matter experts (SMEs), most of whom were also active adult education classroom teachers. This team became the Informal Team of Practitioners (ITP). Similar to the composition of the SWG, the ITP included representatives from adult education, developmental education, college faculty, and career/technical training.

A third priority was to introduce a series of checks and balances by establishing an ongoing feedback process and conducting a series of online validation surveys. Project staff members facilitated the feedback and validation process, which included multiple rounds of review and revision by both the SWG and the ITP.

Timeline of Deliberations

The first full meeting in March 2016 began with an orientation to the role and responsibilities of the SWG, as well as to understand the State's standards initiative. Discussion topics included the State's perspective on the standards, establishing a common set of definitions and a common language, establishing norms for working together, determining frequency and methods of communication, and reviewing the change process as it relates to the standards development. SWG members used a Nominal Group Technique (Delbecq & VandeVen, 1971, and Vedros, 1979) to identify areas they considered to be either relevant and important to adult education or not essential to adult education. SWG members were asked to make professional judgments regarding the knowledge and skills they believed were necessary to include in any standards for Adult Education. The SWG agreed upon three primary areas that the standards should address: English Language Arts and Literacy (thus merging reading and writing), Mathematics, and English as a Second Language. Notes from this meeting were summarized and sent to the members of the SWG who were asked to confirm their agreement with the accuracy of the identified key content and skills.

During March and April 2016, an environmental scan of existing materials and publications authored by stakeholder groups allowed project staff to gather information without requiring a commitment of time from the SWG and the ITP. Project staff and consulting SMEs reviewed research on the following: (a) standards-based education, (b) the content areas, and (c) existing federal and state-level Adult Education content standards. The review of the research on standards-based education helped to provide an understanding of the potential effect that content standards will have on other systems in adult education such as curriculum, instruction, assessment, professional development, and local program accountability. The review of content area standards assisted in identifying and narrowing the key components and skills for each of the content areas—English Language Arts, Mathematics, and English as a Second Language. The review of existing federal and state-level adult education content standards assisted in determining how best to use existing standards to inform the Texas standards. The reference section of this book includes a list of the documents used during each step of the

Timeline of Deliberations (cont.)

environmental scan. Following the environmental scan, to assist SWG and ITP members, and to expedite the development process, content experts and project staff made initial judgments about the process and content that should guide the development of content standards.

Process Framework (cont.)

In May 2016, the SWG members began reviewing the Content Standards draft and providing written feedback via participation in a digital validation survey. For each Standard and its supporting Benchmarks, the work group members were asked to apply four criteria in order to make a professional judgment: (a) Content Match, (b) Accuracy, (c) Equity, and (d) Relevance. The SWG members were asked to apply these criteria and to determine if each standard and benchmark was "valid as is" or "not valid." If the reviewer felt that a given standard or benchmark was "not valid," they were asked to suggest revisions to the statement that could be addressed in subsequent drafts of the Content Standards. The SWG member could also provide general comments and feedback not specific to any individual standard or benchmark.

Drafts of the three identified Content Areas—English Language Arts (ELA), Mathematics, and English as a Second Language (ESL)— were produced by content experts and then submitted to the SWG and the ITP for two rounds of review and validation to develop three progressive drafts of the standards and benchmarks for each of the three Content Areas. Following Round 1 and Round 2 reviews, consulting SMEs reviewed the revisions to ensure that the draft Content Standards continued to reflect current research and practice. The third draft for each Content Area was then reviewed by a national expert on standards development who suggested editorial revisions to strengthen the language and structure of Content Standards. This expert did not make revisions that would change the intent of the SWG. The feedback provided by the SWG was essential to the development of each of the three progressive drafts of the Content Standards. The national standards expert and project staff reviewed and addressed all relevant changes in the documents after each round of SWG and IPT review.

Additional feedback was also sought from the ITP, who were asked to review the SWG's decisions and apply the perspective of an Adult Education classroom teacher to the draft Content Standards.

June 2016 was dedicated to reviewing and responding to the feedback provided by the SWG and the ITP via the validation process. When conflicting suggestions were made by different SWG or ITP members for adding, revising, or deleting specific content, project staff solicited further review and feedback from content expert consultants whose expertise informed final decisions. Feedback from these content expert consultants was gathered using a Delphi Method (Delbecq, VandeVen, & Gustafson, 1975). The Content Standards included in this document were identified and refined into their current version over a period of three months of review and deliberations.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Process Framework (cont.)

The draft Content Standards underwent a 52-day period of public comment from July 15, 2016 through September 5, 2016. Project staff scheduled 5 face-to-face public comment sessions over a 2-week period in early August in the following cities: San Marcos, TX, at the Literacy Texas Conference, San Antonio, TX, Midland, TX, Fort Worth, TX, and Houston, TX. Feedback received during the public comment period was used to further refine the draft Content Standards.

A final meeting of the SWG was held October 7, 2016 in San Antonio, TX. The purpose of this meeting was to provide working group members with an additional opportunity to closely examine and provide feedback on the draft content standards and benchmarks. The SWG members were directed to prepare for the meeting and were mailed bound copies of the following documents: 1) The draft of the Texas Adult Education Content Standards and Benchmarks, 2) Example Performance Indicators document, and 3) Guiding Prompts for Content Standards Review, with Tips for submitting effective feedback. SWG members were directed to utilize weeks prior to the final meeting to thoroughly review the draft contents and benchmarks for their area of expertise using the guiding prompts and to bring responses in writing to the meeting on October 7th.

The guiding prompts were as follows:

1. Logical Development of ELA/Mathematics/ESL concepts:
   If necessary, note any inconsistencies in the logical development of ELA, mathematics, and ESL concepts.
2. Vocabulary and Terminology:
   If necessary, note any incorrect, inconsistent, or confusing vocabulary and terminology contained in the document.
3. Rigor:
   If the level of rigor for exit standards is inappropriate for the ELA, mathematics, or ESL standards, indicate which standard and how it might be revised to an appropriate level and include a rationale for the revision.
4. Clarity of Benchmarks:
   If necessary, offer recommendations for making the language in the benchmarks clearer or more specific.
5. Reflection of Current Research:
   If necessary, provide specific recommendations for what should be added or deleted, including citations for the research on which the recommendations are based.
6. Alignment to the Texas College and Career Readiness Standards:
   Provide recommendation for revisions that will help align the standards more appropriately to the TCCRS.

Process Framework (cont.)

SWG members were invited to add suggestions for ways in which the ELA/Mathematics/ESL Standards and Benchmarks could be improved.

A series of conference calls were held the week prior to the October 2016 meeting with the SWG content area sub groups (ELA, Math, and ESL) to provide an advance opportunity for the members to discuss their reviews of the draft Content Standards. The calls were facilitated by staff from the Texas Workforce Commission and participants were directed to bring specific comments and recommendations in writing to the October 7th meeting.

Content Validation Process

Each Content Area was put though a structured content validation process in which two rounds of review were conducted with the SWG and the ITP. The content validation review provided a structured methodology by which the SWG and ITP members provided feedback on the content standards and benchmarks. The information included below provides a summary overview of the directions provided to the group members and an example of a validation form. A final review of the Content Standards was conducted by consulting subject matter experts from which the version was constructed. The validation surveys were conducted using the online tool, Survey Monkey.

Content validation methods focus on content relevance and representation (Stelly & Goldstein, 2007, p. 256). Content relevance is the extent to which the knowledge and skills are relevant to the target domain. Representativeness refers to the extent to which the knowledge and skills are proportional to the facets of the domain. Content relevance and representativeness are commonly assessed using subject matter expert ratings.

Summary Overview of Draft Standards Review, Feedback and Validation Criteria

The following criteria were considered while reviewing the Draft Standards.

1. Content Match

- Is the content addressed by the Standards and the supporting Benchmarks appropriate for inclusion in the Content Standards?
- Is the content within each Standard and the supporting Benchmarks appropriate for adult students to work toward as an exit level performance level?
- Do the Standards and the supporting Benchmarks reflect appropriate exit level expectations for adult learners?
- Are the Benchmarks appropriate to show an adult students' ability to meet the Standard?
- Is the content, knowledge, or skill addressed by the Standard and the supporting Benchmarks relevant to adult learners?

2. Accuracy

The content contained in the Standards must be accurate. This applies also to terminology and grammar. Each Standard must present clearly defined content, knowledge, or skill expectations. Benchmarks should be concise and a true representation of the types of things that students should be able to do when they have reached the exit level standard. The physical representation of the Standards and any additional graphics should be accurate and easy to understand.

- Does the Standard clearly state the required content knowledge or skill/task?
- Are clear expectations stated within the Standard and the supporting Benchmarks?
- Is the terminology used accurate and appropriate?
- Are the Standards and supporting Benchmarks grammatically correct?
- Are the Standards and supporting Benchmarks clear in meaning?
- Is the physical presentation clear, accurate, and easy to understand?

Summary Overview of Draft Standards Review, Feedback and Validation Criteria (cont.)

3. Equity

The language and content included in the Standards and the supporting Benchmarks must be free of potential stereotypes and should not disadvantage, offend, or be advantageous to any individual based upon race, ethnicity, gender, religion, age, nationality, or disability. The Standards and the supporting Benchmarks should be fair and equitable to all learners.

- **Content** - Are the Standards and the supporting Benchmarks free of content that could disadvantage or be advantageous to an individual based upon race, ethnicity, gender, religion, age, nationality, or disability? Economic, cultural, or geographic background?
- **Language** - Are the Standards and the supporting Benchmarks free of language that disadvantages or is advantageous to an individual based upon race, ethnicity, gender, religion, age, nationality, or disability? Economic, cultural, or geographic background? Offense - Are the Standards and the supporting Benchmarks presented in such a way as to not offend an individual based upon race, ethnicity, gender, religion, age, nationality, or disability? Economic, cultural, or geographic background?
- **Stereotypes** - Are the Standards and the supporting Benchmarks void of language or content that may represent a stereotypical view of an individual or group based upon race, ethnicity, gender, religion, age, nationality, or disability? Economic, cultural, or geographic background?
- **Fairness** - Are the Standards and supporting Benchmarks fair to all individuals regardless of race, ethnicity, gender, religion, age, nationality, or disability? Economic, cultural, or geographic background?

4. Relevance

- Do the Standards and the supporting Benchmarks require tasks and state expectations that are appropriate exit level expectations for adult learners?
- Do the Standards and the supporting Benchmarks measure content, knowledge, and skills that an adult learner who is exiting adult education services should know or be able to do?
- Is the content, knowledge, and skills contained in the Standards and the supporting Benchmarks relevant to adult learners?

APPENDIX E

Description of the Standards Alignment to Industry Clusters Project (2017-2018)

The Standards Alignment to Industry Clusters Project and *Content Standards 2.0*

The 2016 Texas *Adult Education and Literacy Content Standards* was intended to develop college and career readiness standards in adult education and literacy (AEL) that link adult education, post-secondary education, and the world of employment. The focus of the 2016 standards was mainly on academic outcomes; the second phase of *Standards 2.0* was to explore applications of the standards to employment.

The Standards Alignment to Industry Clusters (SAIC) project was a grant-funded project of the Texas Workforce Commission. The project was conducted from June 2017 to August 2018 with the objective of aligning the 2016 *Texas Adult Education and Literacy Content Standards* to knowledge, skills, and abilities required for success in high-demand entry- and intermediate-level jobs that have career potential for adult education customers.

Under the guidance of the Texas Workforce Commission, four lead organizations worked in partnership with adult educators and subject matter experts from the four target industries to develop the content for *Content Standards 2.0*. The forty-one subject matter experts have extensive backgrounds in training, education, and the world of work. Over a year's time (June 2017 – June 2018), the experts convened in person and virtually to align the knowledge, skills, and abilities needed for in-demand jobs with career potential with the AEL Content Standards. The names and affiliations of the team members are provided in Appendix F.

Employers: The twenty-eight industry representatives ranged from former oil and gas executives, construction trades entrepreneurs, and healthcare human resources directors to manufacturing training managers and distribution center managers. They came from diverse geographic regions of the state. Many had experience partnering with educators to help prepare students for work in their sectors. Several had learning programs on site at their companies, for example, for English as a Second Language, technical skills, or other areas.

Adult Educators: The fourteen subject matter experts representing adult education and literacy programs from around the state had years of experience in the development, delivery, and management of instruction. The team included bilingual instructors and program managers as well as those with expertise in the development and delivery of workplace literacy. The teams were led by project managers with decades of experience in adult literacy and workforce development, including multiple projects with Fortune 500 employers and public-private workforce education partnerships.

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The Standards Alignment to Industry Clusters Project and *Content Standards 2.0* (cont.)

Lead Partners: Four primary partners guided the development of the content for *Standards 2.0*. The partners included experts with decades of experience in adult literacy and workforce research and development, national and state standards, public-private workforce education partnerships, and industry training and credentialing.

- **Literacy Texas** - the statewide literacy coalition, connecting and equipping literacy providers through resources, training, networking, and advocacy.
- **Educational Testing Service (ETS)** - the world's largest educational assessment and research organization.
- **National Center for Construction Education and Research (NCCER)** - dedicated to standardized training and credentialing for the industry in order to develop a workforce that is safe and productive.
- **Haigler Enterprises International, Inc.** - a consulting firm with extensive experience in adult literacy, workforce analysis, public-private partnerships, and academic and skills standards.

The SAIC project examined high demand jobs in four key industry clusters—Advanced Manufacturing, Construction and Extraction, Healthcare Sciences, and Transportation, Distribution, and Logistics. These clusters were selected because they are expected to grow in all regions of Texas and because each cluster offers a wide variety of job opportunities and pathways. The project convened a working group from each cluster consisting of employers and key industry staff who examined the 2016 Content Standards to determine their relevance to jobs and industry employment requirements. Subject matter experts from AEL were then convened to evaluate the findings and recommendations of the industry cluster working groups.

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The Standards Alignment to Industry Clusters Project and *Content Standards 2.0* (cont.)

The project also relied heavily on O*NET[1] for data and general information on high-demand jobs in the four target industry clusters. The Educational Testing Service (ETS) led the research effort to identify high-demand occupations in the four target industry clusters and related critical characteristics across the jobs. ETS:

- identified high-demand jobs for each of the four industry clusters based on data from Texas Workforce Commission reports (2015/2016) and jobs in O*NET that show positive growth projections in Texas (15% or more) from 2014-2024.
- used O*NET to conduct research on knowledge, skills, abilities, work activities, and work styles for Texas high-demand jobs for each of, and across, the four industry clusters.
- calculated the mean (to show overall high level of importance) and Standard Deviation (to represent the range spread of characteristic importance). ETS used these to identify the critical characteristics that were focused on high importance across the majority of the jobs.

Additional job-related information was provided by the industry cluster and AEL subject matter experts. The industry cluster experts provided specific work-related examples tied to positions and tasks in their sectors. The AEL experts conducted research about high-demand entry- and intermediate-level jobs in O*NET to confirm these critical characteristics.

The project team developed draft documents that aligned the standards with the work-related information. The subject matter experts provided feedback and validated the information. Finally, the draft documents from the SAIC project were integrated into the *2016 AEL Content Standards and Benchmarks*. The resulting product was re-named *Content Standards 2.0*.

[1] U.S. Department of Labor's Occupational Information Network.

Standards 2.0 is version 2 of the Texas Adult Education and Literacy Content Standards.

Why is it important to align academic standards to jobs?

A good career requires college-ready and career-ready knowledge and skills. Leading economists who have examined labor market projections note that key college- and career-ready knowledge and skills are closely linked to being able to get the training necessary to earn a living wage in high-growth industries (Carnevale & Desrochesrs, 2002, 2003). It is important, then, that Adult Education programs provide students the opportunity to acquire these skills to pursue their long-term career aspirations and goals.

The employers who participated in SAIC agreed that preparing students with knowledge and skills used on the job would help students succeed at work. Representatives from the healthcare sciences industry, for example, said that that they would prefer to train employees on competencies and skills needed instead of accepting blanket certifications and degrees that do not ensure job readiness. The implication for AEL providers, they say, is that *Standards 2.0* can help students achieve academic competencies through work skills.

A representative from advanced manufacturing put it this way: "This project is important now. There is an urgent need for the employer voice that can't wait another two to eight years to set educational standards for industry." An employer from the construction industry said that *Standards 2.0* provides a teaching opportunity in which employers can be translators, helping educators better understand what the workplace requires of their students. The project's end game, one industry representative added, is about competencies and skills, not just about education levels.

Subject matter expert employers from the four industries identified moderate to severe shortages in finding workers. In transportation, for example, there is a severe shortage of truck drivers that will significantly impact the industry. In construction, likewise, a significant lack of skilled tradesmen makes infrastructure projects much more challenging.

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Why is it important to align academic standards to jobs? (cont.)

The *Standards 2.0* initiative also supports the Strategic Plan for Adult Education & Literacy, 2015 – 2020. A central component of the initiative was engaging employers to align the standards with knowledge, skills, and abilities that lead to success on the job and careers as described in the table below.

Strategy 1, Objective 2: Increase business and employer community roles in AEL.
Tactic 1: Engage businesses, chambers of commerce, and the Texas Association of Business in developing strategies for increasing employer engagement in AEL.
Tactic 2: Fund and support with technical assistance work-based projects with employers to support business expansion and build employers as AEL allies.
Tactic 3: Engage employers and employer organizations and expand investments that have proven effective within the 28 Local Workforce Development Boards in efforts to align AEL levels to occupationally-specific skills and work-readiness requirements, including work-recognized certifications.

How can *Content Standards 2.0* be used?

By aligning the standards to competencies required by employers, the standards become a resource for program improvement. Workforce development specialists can use the standards to:

- Guide the development of skills required for work;
- Define skills and tasks not easily identified in academic standards;
- Focus instruction and career guidance;
- Promote AEL and students as an employer resource;
- Engage employers and workforce professionals actively in AEL; and
- Review skill requirements in other sectors.

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How can *Content Standards 2.0* be used? (cont.)

Standards 2.0 creates a valuable resource for a broad spectrum of stakeholders:

Instructors can use the standards to ensure learning activities support a trajectory toward both college and career readiness while supporting students in better understanding how what they learn applies to work.

Curriculum developers can use the standards to outline required content and skills and develop and align curriculum, instruction, and assessments to work requirements.

Career navigators, job developers, and vocational rehabilitation counselors can use the standards to better target career counseling along defined career pathways to better prepare students for successful, long-term employment and continued career progression.

Employers can use the standards to better develop job descriptions as well as succession paths for current workers.

Integrated education and training staff can use the standards to contextualize curriculum and activities to ensure programs better match learners' skills with job requirements.

Directors can use the standards to build program objectives, and curricula, select instructors, and deploy professional development to support the critical skills and knowledge expected and required for success in at work in college and training and into employment.

What skills are more relevant for work?

Industry subject matter experts emphasized that there are several areas that are critical to success in employment across jobs and sectors. Examples of critical characteristics that are relevant to in-demand entry-level and intermediate-level jobs with career potential include the following:

Critical Thinking

Employers are clear in their definition of critical thinking. It's about the application of thinking skills on the job.

A representative from the transportation/distribution/logistics sector explained that critical thinking is a bedrock for all courses and evaluations. It is about how students take in information, synthesize it, and apply it. The ability to think critically constantly evolves. The importance of a business workplace context can be important in learning how to apply this skill.

An expert from healthcare sector said that: "Critical thinking environments require that employees determine what information is lacking and how to make decisions without pieces of information that are needed." The lack of critical thinking, as another put it, impacts decisions made by healthcare professionals at all times: "What is paramount is knowing what you are doing and why."

As more than one employer and multiple educator experts pointed out, critical thinking in the workplace is an amalgam of skills, typically brought together in response to a problem. It is not enough to be able to solve a problem on a worksheet in a class setting. In the workplace, first the problem has to be discovered, then defined, and broken into component parts before different options for solving the problem become clear. All of these steps require critical thinking. It is a skill, another healthcare representative said, that improves with years of experience and exposure.

Communication

Communication is an essential part of work and life. Research repeatedly demonstrates that effective communication ties to an organization's productivity and performance, and to employee engagement. As one example of the importance of communication, employees at all levels must understand and be able to communicate around safety or lives could be at stake. Communication may be called on when members of a team must collaborate to determine the root cause of an issue and to support critical thinking. Active listening is an important aspect of communicating at work. Whether it is a daily start-up meeting, working with a colleague or customer, or receiving instructions, employees are expected to be focused listeners and to ask appropriate questions to clarify information being relayed.

Communication, of course, is also fundamental to success in learning.

What skills are more relevant for work? (cont.)

Teamwork

Effective teamwork is also vital to success in the workplace. On effective teams, all the workers actively contribute, often in collaborative problem-solving. Workers must respect and help one another because they depend so much on each other. Team members focus on a common goal while executing related tasks. All aspects of communication are important as is mutual support.

Technology

Can you think of a job with career potential that doesn't involve technology? Virtually every career and industry are becoming more technology-reliant and there is every indication that this trend will continue. Therefore, students with the ability to understand and apply technology on the job will be better positioned for success and advancement.

The industry cluster representatives emphasized that technology as it is used in the workplace can be applied across the standards. A sub-team of adult educators and employers in the project identified a resource that can help support educators and workforce development specialists as they include applied technology in lessons and activities. The International Society for Technology and Education (ISTE) is a comprised of educators from around the world who support technology as a way to improve learning. The organization has developed a set of ISTE Standards as a framework for students, educators, administrators, coaches, computer science educators, and others to develop innovative learning strategies. The SAIC team members recommend the standards as a best-practice approach to help integrate work-relevant technology into adult learning.

APPENDIX F

Standards Working Group, Subject Matter Experts, Industry Cluster Members, and Project Staff

Appendix F

Standards Working Group – Phase One

Juan Carlos Aguirre, M.A.	Dean of Continuing, Professional, and Workforce Education	South Texas College
Kay Brooks, M.A.	AEL Grant Project Manager	Brazosport College
Tamara Clunis, Ph.D.	Dean, Academic Success	Amarillo College
Cesar Diaz, M.P.A., J.D.	Coordinator	Tarrant County College
Tammy Donaldson, Ph.D.	Assistant Professor of Reading & Developmental Education Coordinator	Del Mar College
Marta M. Edwards, M.A.	The Center for College Access and Development	El Paso Community College
Annette Gregory, M.Ed.	Executive Director for Career and Technical Education	Austin ISD
Denise Guckert, M.A.	Adult Education Coordinator	Austin ISD
David Lindsay, M.S., M.B.A.	Vice President of Technical Research and Board of Directors of Literacy Texas	Central Texas Water Coalition; Literacy Texas
Denise Lujan, M.S.	Director of Developmental Math	The University of Texas, El Paso
Mary Helen Martinez, M.A.	Director of College Readiness	Alamo Community College
LaShondia McNeal, Ph.D.	Program Director for Research, Evaluation, and Professional Development	Houston Community College

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Standards Working Group – Phase One (cont.)

Suzanne Morales-Vale, Ph.D.	Director, Developmental and Adult Education	Texas Higher Education Coordinating Board
Denise Orand, M.Ed.	Director, Adult Education Grants	San Jacinto College
Glenda Rose, Ph.D.	Professional Development Specialist	Texas Center for the Advancement of Literacy and Learning
Sandi Schneider, M.Ed.	Trainer	Texas A&M University
James Slack, M.S., M.B.A.	Statewide Mathematics Coordinator	The Texas Education Agency

Informal Team of Practitioners – Phase One

Anwar Asad, M.Ed.	ESL Teacher	The University of Texas at El Paso
Julie Cosby, B.S.	Teacher, Teacher Facilitator	Fort Worth ISD
Marsha Ellis, M.Ed.	Faculty Development Specialist	Alamo Community Colleges
Olga Escamilla, Ph.D.	Lecturer, Professional Development Specialist	Texas A&M Kingsville, Texas Center for the Advancement of Literacy & Learning
Debbie Janysek, M.A.I.S	Adult Education Lead Instructor	Victoria College
Tiffany Lee, M.Ed.	Distance Learning Lead Instructor	Region 9 Education Service Center
Elizabeth Moya, C.M.P.I.	Curriculum Specialist	Ysleta Community Learning Center

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Informal Team of Practitioners – Phase One (cont.)

Patricia Solomon, M.B.A.	Director	Transforming Lives to the Next Level
Janice Wall, B.A.S.	Teacher	Temple College

Consulting Subject Matter Experts – Phase One

Clarena Lorrotta, Ph.D	Associate Professor of Adult Education, ESL Literacy and Research	Texas State University
Theresa Jones, Ph.D.	Faculty, Department of Mathematics	Texas State University
Terry Salinger, Ph.D	Fellow and Chief Scientist for Literacy Research	American Institutes for Research
Denise Sumlin-Johnson	Program Assistant, Adult Education Teacher	Harris County Department of Education

Industry Cluster Team Members – Phase Two

Cluster	Member	Affiliation
Advanced Manufacturing	J.R. Gambill Frank Green Sarah Haskins Candy Slocum Pat Tarver Keith Bell	Klein Tools Bell Helicopter Mother Parkers Tea & Coffee InterLink APICS San Antonio Intex Electrical Contractors, Inc.
Construction & Extraction	Scott Bland Jane B. Hanna Jay Jones David Lindsay (retired) Todd McAlister Mike Sandroussi Natalie Smith	Jim Bland Construction Construction Education Foundation Lincoln Electric LyondellBasell Texas Air Conditioning Contractors Association Craft Training Center of the Coastal Bend KBR
Healthcare Science	Kathryn Biediger Jacque Burandt Gerard Camacho Valerie Esparza Seleria Fletcher Daniel Gandarilla Beena Joseph Lee Webster	University Health Systems Award-Winning Results Parkland Health & Hospital Systems Seton Healthcare Family Memorial Hermann Health System Texas Health Resources Memorial Hermann Health System Healthcare Management Institute - UTMB

Industry Cluster Team Members – Phase Two (cont.)

Cluster	Member	Affiliation
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AEL Team Members – Phase Two

Ashley Trevino	Director of Adult Education	Grayson College
Glenda Rose	Program Manager for PD Needs Assessment and Evaluation	TRAIN PD at Texas A&M University
Cheryl Smith	Assistant Director, Career Navigator, and IET CMA Instructor	Howard College
Mechelle Marler	Education Division Instructional Specialist	Austin Community College
Elizabeth "Liz" Moya	Professional Development Coordinator	Ysleta Community Learning Center
Delia Watley	Program Director	Irving ISD, AEL Program
Beth Ponder	Associate Director PD Field Services, Professional Development Content Specialist	TRAIN PD at Texas A&M University

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AEL Team Members – Phase Two (cont.)

AnneMarie Molinari-Sanders	Content Specialist	TRAIN PD at Texas A&M University
Karen Condit	Academic Facilitator, Instructional Coach, Lead Instructor	Region 20 ESC, Alamo Adult Education Consortium
Debbie Janysek	Professional Development Coordinator	Victoria College Adult Education
Kelli Rhodes	Executive Director	Restore Education
Denise Johnson	Professional Development Coordinator	Harris County Department of Education
David Garza	Technology and Curriculum Coordinator	Denton ISD, Adult Education & Literacy

Informal Advisors – Phase Two

Jeff Holcomb	Former CEO and President	Altus Traffic
Jeff Hall	Workflow Advisor	Chevron

SAIC Project Staff – Phase Two

Jennifer Edwards	CEO	Literacy Texas
Federico Salas-Isnardi	Acting CEO	Literacy Texas
Dale Pillow	Board of Directors	Literacy Texas
Bridgette Krienke	Community Coordinator	Literacy Texas
Sasha Khalifeh	Program Manager	Literacy Texas
Dan Hawthorne, Ph.D.	Director of Industrial/Organizational Solutions	Educational Testing Service
Maria Elena (Malena) Oliveri, Ph.D	Research Scientist	Educational Testing Service
David Lindsay	Retired	LyondellBasell
Karl Haigler	President	Haigler Enterprises International, Inc.
Rae Nelson	Associate	Haigler Enterprises International, Inc.

Texas Workforce Commission Staff

Anson Green, M.A.	State Director, Adult Education and Literacy	Texas Workforce Commission
John Stevenson, M.Ed.	Program Specialist	Texas Workforce Commission

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