Alaska Adult Education

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Alaska Adult Education

CONTENT STANDARDS

Content Standards for:

- English/Language Arts
- Mathematics
- Digital Literacy

Contents

Overview of the Alaska Adult Education Content Standards

While the Alaska English/Language Arts and Mathematics Content Standards provide a strong foundation for instruction that ensures that learners have access to instruction that supports them in developing the skills necessary for success, adult learners need specific knowledge and skills to meet the demands of postsecondary training and employment without needing remediation. With this in mind, Alaska Adult Education contracted with the American Institutes for Research (AIR) to develop college and career readiness standards that were appropriate for adult learners in Alaska. As with the K–12 standards, these standards do not specify what must be taught in the classroom; instead, these standards allow adult educators to understand where to focus their efforts and shape overall instruction. The standards must be translated into curriculum and lessons that can be used to provide rigorous instruction that will help their students gain the knowledge and skills they need to be successful and be competitive in the evolving job market for teaching the content of the standards to students. Classroom activities, assignments, and a range of formative and summative assessments can then be used to help determine whether or not students have gained the essential skills and knowledge identified in the standards (U.S. Department of Education, Office of Vocational and Adult Education, 2013).

In developing these standards, the project team conducted a close analysis of the Alaska English/Language Arts and Mathematics Content Standards to better understand the important adaptations made to the Common Core State Standards (CCSS) to fit the specific needs of the Alaskan context more appropriately. That analysis served as the basis for the adaptations made to the College and Career Readiness Standards for Adult Education (CCRS). First each CCRS anchor standard was considered carefully to identify any revisions that would support its use by adult education instructors in Alaska; largely, the CCRS anchor standards and the Alaska English/Language Arts and Math Content Standards' anchor standards were identical and only minor edits were needed to create an updated set of standards that were appropriate for the Alaska adult education classroom. Similar treatment was given to the level-specific standards, resulting in sets of standards for English/Language Arts and Math that, while based in the existing national adult education standards, were appropriate for the Alaska-specific context.

The International Society for Technology in Education (ISTE)'s Standards for Students served as the basis for the digital literacy standards, and the North Carolina Digital Learning Standards Grade Band Indicators informed the sample performance indicators. While there may be some additional basic computer and software skills that teachers may want to work on with students as a precursor, the digital literacy standards were developed with a goal of identifying the key knowledge and skills needed to be successfully in a digitally rich environment like postsecondary education and the workforce. The standards are comprehensive, offering support for teachers working with students from beginning levels progressing through college and career readiness.

In developing all three sets of standards, the most critical was ensuring that the standards reflect the realities of the adult education classroom in Alaska. To this end, Alaska's adult educators played a key role in reviewing and refining the standards. They provided extensive feedback on an initial draft set of standards that was incorporated into this resulting set of standards. The success of the project would not have been possible without their help and contributions.

The following individuals shared their time and expertise:

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The standards that resulted from the work described above are presented in this document.

The English/Language Arts Anchor Standards[1]

Reading

The Reading standards that follow establish increasing complexity in what students must be able to read so all students are ready for the demands of postsecondary education and careers, whether reading for a class or to understand a complex instruction manual. The standards also require the progressive development of reading comprehension; students advancing through the levels are able to gain more from whatever they read.

Through reading a diverse array of classic, contemporary, and Alaskan-based literature as well as relevant and complex informational texts, students are expected to build knowledge, gain insights, explore possibilities, and broaden their perspective. This may require a review of texts provided at various levels to determine if the full breadth of reading is available.

The reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Standard 10 defines a level-by-level "staircase" of increasing text complexity that rises from beginning reading to the college- and career-readiness level. Teachers are to engage students in a range of text at multiple levels; an extension into upper levels may require scaffolding. Whatever they are reading, students must also show a steadily growing ability to discern more from and make fuller use of the text, including making an increased number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

[1] Adapted from the Alaska English/Language Arts and Mathematics Content Standards and the College and Career Readiness Standards for Adult Education.

9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity

10. Read and comprehend a range of complex literary and informational texts independently and proficiently.

Writing

The ability to write logical arguments based on substantive claims, sound reasoning, and relevant evidence is a cornerstone of the writing standards, with opinion writing—a basic form of argument—extending down into the lower levels. These are skills that are important for both academic and workplace success. They can help students write papers for class and communicate in writing effectively with their boss or co-workers.

Student research includes both short, focused projects and longer-term, in-depth projects. This is emphasized throughout the standards. Research skills are predominantly in the writing strand since a written analysis and presentation of findings are so often critical to communicate information.

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Use narrative writing to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Speaking and Listening

The standards require that students gain, evaluate, and present increasingly complex information, ideas, and evidence through listening and speaking as well as through media.

An important focus of the speaking and listening standards is discussion in one-on-one, small-group, and larger group settings. Presenting information in a formal way, like a presentation, are important, but so is the more informal discussion in the classroom or on the job that takes place as our adult learners collaborate to answer questions, build understanding, and solve problems with others.

Comprehension and Collaboration

1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.[2]

Presentation of Knowledge and Ideas

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and that the organization, development, and style are appropriate to task, purpose, and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Language

The standards provide opportunities for students to develop their vocabularies on topics that relate to their education or careers through a mix of conversations, direct instruction, and reading. The standards emphasize word meanings and nuances of words, and steadily expand the repertoire of words and phrases.

The language standards prepare students for real life experience in post-secondary education and in twenty-first century jobs. Students must be able to use formal English in their writing and speaking when needed and be able to make informed, skillful choices among the many ways to express themselves through language, determining the most appropriate way to do so within a given context.

Conventions of Standard English

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

[2] For the purposes of the standards, the term "rhetoric" should be understood as "the art of effective or persuasive speaking or writing, especially the use of figures of speech and other compositional techniques".

Knowledge of Language

3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college- and career-readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

The Anchor Standards for Mathematical Practice[3]

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the National Council of Teachers of Mathematics process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

[3] Adapted from the Alaska English/Language Arts and Mathematics Content Standards and the College and Career Readiness Standards for Adult Education.

The Mathematical Content Anchor Standards[4]

The mathematics standards prepare Alaska adult learners to be competitive academically and in their careers. These standards are a set of specific, rigorous expectations that build students' conceptual understanding, mathematical language, and application of processes and procedures coherently from one level to the next so all students will be successful. The focus areas for each level and each conceptual category narrative establish a depth of knowledge as opposed to a breadth of knowledge across multiple standards in each level.

The standards for mathematics stress both conceptual understanding and procedural skills to ensure students learn and can apply the critical information needed to succeed at each level. These skills can support students both academically and in their careers.

Beginning Adult Basic Education Literacy

Counting and Cardinality

1. Know ordinal names and counting flexibility.
2. Count to tell the number of objects.

Operations and Algebraic Thinking

1. Represent and solve problems involving addition and subtraction.
2. Understand and apply properties of operations and the relationship between addition and subtraction.
3. Add and subtract with 20.
4. Work with addition and subtraction.

Number and Operations in Base Ten

1. Understand place value.
2. Use place value understanding and the properties of operations to add and subtract.

Measurement and Data

1. Measure lengths indirectly and by iterating length units.
2. Represent and interpret data.

Geometry

1. Analyze, compare, create, compose shapes.
2. Reason with shapes and their attributes.

[4] Adapted from the Alaska English/Language Arts and Mathematics Content Standards and the College and Career Readiness Standards for Adult Education.

Beginning Basic Education

Operations and Algebraic Thinking

1. Represent and solve problems involving addition and subtraction.
2. Add and subtract with 20.
3. Represent and solve problems involving multiplication and division.
4. Understand properties of multiplication and the relationship between multiplication and division.
5. Multiply and divide within 100.
6. Solve problems involving the four operations and identify and explain patterns in arithmetic.

Number and Operations in Base Ten

1. Understand place value.
2. Use place value understanding and properties of operations to add and subtract.
3. Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions

1. Develop understanding of fractions as numbers.

Measurement and Data

1. Measure and estimate lengths in standard units.
2. Relate addition and subtraction to length.
3. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
4. Represent and interpret data.
5. *Geometric measurement*: understand concepts of area and relate to area of multiplication and addition.
6. *Geometric measurement*: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Geometry

1. Reason with shapes and their attributes.

Low Intermediate Basic Education

Operations and Algebraic Thinking

1. Use the four operations with whole numbers to solve problems.
2. Gain familiarity with factors and multiples.
3. Generate and analyze patterns.
4. Write and interpret numerical expressions.

Expressions and Equations

1. Apply and extend previous understandings of arithmetic to algebraic expressions.
2. Reason about and solve one-variable equations and inequalities.
3. Represent and analyze quantitative relationships between dependent and independent variables.

Number and Operations in Base Ten

1. Generalize place value understanding for multi-digit whole numbers.
2. Use place value understanding and properties of operations to perform multi-digit arithmetic.
3. Understand the place value system.
4. Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations—Fractions

1. Extend understanding of fraction equivalence and ordering.
2. Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.
3. Understand decimal notation for fractions, and compare decimal fractions.
4. Use equivalent fractions as strategy to add and subtract fractions.
5. Apply and extend previous understanding of multiplication and division to multiply and divide fractions.

The Number System

1. Compute fluently with multi-digit numbers and find common factors and multiples.
2. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

Measurement and Data

1. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
2. *Geometric measurement*: understand concepts of angle and measure angles.
3. Convert like measurement units within a given measurement system.
4. Represent and interpret data.
5. *Geometric measurement*: understand concepts of volume and relate volume to multiplication and to addition.

Geometry

1. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
2. Graph points on the coordinate plane to solve real-world and mathematical problems.
3. Classify two-dimensional figures into categories based on their properties.
4. Solve real-world and mathematical problems involving area, surface area, and volume.

Ratios and Proportional Relationships

1. Understand ratio concepts and use ratio reasoning to solve problems.

Statistics and Probability

1. Develop understanding of statistical variability.
2. Summarize and describe distributions.

High Intermediate Basic Education

The Number System

1. Apply and extend previous understandings of numbers to the system of rational numbers.
2. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
3. Know that there are numbers that are not rational, and approximate them by rational numbers.
4. Understand ratio concepts and use ratio reasoning to solve problems.
5. Analyze proportional relationships and use them to solve real-world and mathematical problems.

Expressions and Equations

1. Use properties of operations to generate equivalent expressions.
2. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
3. Work with radicals and integer exponents.
4. Understand the connections between proportional relationships, lines, and linear equations.
5. Analyze and solve linear equations and pairs of simultaneous linear equations.

Geometry

1. Draw, construct, and describe geometrical figures and describe the relationships between them.
2. Solve real-life and mathematical problems involving angle, measure, area, surface area, and volume.
3. Understand congruence and similarity using physical models, transparencies, or geometry software.
4. Understand and apply the Pythagorean Theorem.

Statistics and Probability

1. Summarize and describe distributions.
2. Use random sampling to draw inferences about a population.
3. Draw informal comparative inferences about two populations.
4. Investigate chance processes and develop, use, and evaluate probability models.
5. Investigate patterns of association in bivariate data.

Functions

1. Define, evaluate, and compare functions.
2. Use functions to model relationships between quantities.

Adult Secondary Education

Number and Quantity

The Real Number System

1. Extend the properties of exponents to rational exponents.

Quantities

1. Reason quantitatively and use units to solve problems.

Algebra

Seeing Structure in Expressions

1. Interpret the structure of expressions.
2. Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

1. Perform arithmetic operations on polynomials.
2. Rewrite rational expressions.

Creating Equations

1. Create equations that describe numbers or relationships.

Reasoning with Equations and Inequalities

1. Understand solving equations as a process of reasoning and explain the reasoning.
2. Solve equations and inequalities in one variable.
3. Solve systems of equations.
4. Represent and solve equations and inequalities graphically.

Functions

Interpreting Functions

1. Understand the concept of a function and use function notation.
2. Interpret functions that arise in applications in terms of the context.
3. Analyze functions using different representations.

Building Functions

1. Build a function that models a relationship between two quantities.

Linear, Quadratic, and Exponential Models

1. Construct and compare linear, quadratic, and exponential models and solve problems.
2. Interpret expressions for functions in terms of the situation they model.

Geometry

Congruence

1. Experiment with transformations in the plane.

Similarity, Right Triangles, and Trigonometry

1. Prove theorems involving similarity.

Geometric Measurement and Dimension

1. Explain volume formulas and use them to solve problems.

Modeling with Geometry

1. Apply geometric concepts in modeling situations.

Statistics and Probability

Interpreting Categorical and Quantitative Data

1. Summarize, represent, and interpret data on a single count or measurable variable.
2. Summarize, represent, and interpret data on two categorical and quantitative variables.
3. Interpret linear models.

The Digital Literacy Anchor Standards[5]

Today's students must be prepared to thrive in a constantly evolving technological landscape. As students learn, they must effectively research, create, collaborate, communicate, and acquire knowledge in digital environments. The digital literacy standards are designed to empower student voice and ensure that learning is a student-driven process. They also focus efforts on moving beyond the foundational skills for completing tasks on a computer to gaining the skills that are necessary for academic and workplace success.

Empowered Learner

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

1. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
2. Build networks and customize their learning environments in ways that support the learning process.
3. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
4. 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.

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.

1. Cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
2. Engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
3. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
4. Manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

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.

1. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
2. Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

[5] Adapted from the International Society for Technology in Education (ISTE)'s Standards for Students.

3. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
4. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

Innovative Designer

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

1. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
2. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
3. Develop, test and refine prototypes as part of a cyclical design process.
4. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

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.

1. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
2. 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.
3. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
4. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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.

1. Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
2. Create original works or responsibly repurpose or remix digital resources into new creations.
3. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
4. Publish or present content that customizes the message and medium for their intended audiences.

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.

1. 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.
2. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
3. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
4. Explore local and global issues and use collaborative technologies to work with others to investigate solutions.

The Alaska Adult Education Content Standards for English/Language Arts[6]

Introduction to English/Language Arts Standards

The Alaska Adult Education Content Standards for English/Language Arts represent a significant shift toward higher expectations for adult learners. Rather than providing instruction that the traditional focus on basic skills in adult education classrooms, these standards reflect 3 key shifts for adult education instruction:

1. A shift toward regular practice with complex text and its academic language.
2. A shift toward reading, writing, and speaking grounded in evidence from text, both literary and informational.
3. A shift toward building knowledge through content-rich nonfiction.

The standards set a high bar that demands that students develop more robust analytic and reasoning skills and stronger oral and written communication skills so that they can be successful in meeting both their academic and career goals. There is a focus in literacy instruction that highlights the critical connection between comprehension of text and acquisition of knowledge that is needed for students to be college and career ready.

In reading the standards, it is important to keep in mind that the standards identify the knowledge and skills students are able to demonstrate ***when they exit or master that level***. In other words, students within that level are not expected to have that knowledge or skill yet; rather students are working towards those, which may involve building some very foundational skills.

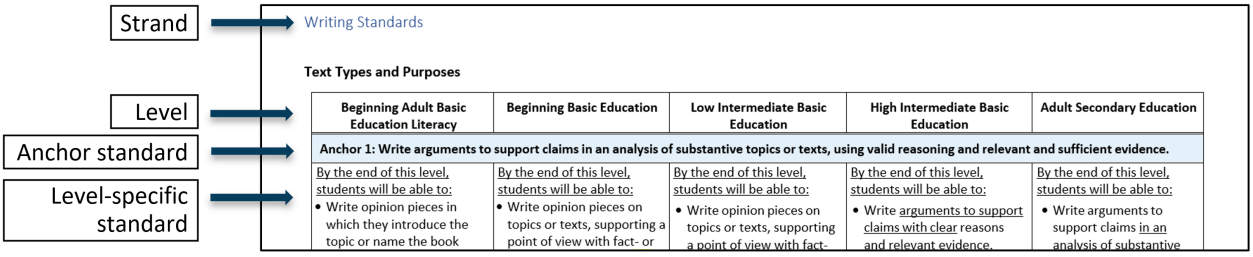
In implementing the standards, teachers should apply culturally relevant approaches in their instruction that align with the Cultural Standards for Educators and implement curriculum that meet the Cultural Standards for Curriculum. Some resources that may be useful include: Alaska Native Knowledge Network and Indigenous Knowledge Systems / Alaska Native Ways of Knowing.

[6] Adapted from the Alaska English/Language Arts and Mathematics Content Standards and the College and Career Readiness Standards for Adult Education.

Organization of English/Language Arts Standards

The charts below contain the standards from the earliest levels of learning through adult secondary education in the ELA/literacy domains of Reading, Writing, Speaking and Listening, and Language. The standards have been bundled into five groupings that reflect adult education levels of learning: Beginning Adult Basic Education Literacy, Beginning Basic Education, Low Intermediate Basic Education, High Intermediate Basic Education, and Adult Secondary Education.

The standards are separated into four *strands*: Reading, Writing, Speaking and Listening, and Language. Each strand is headed by a strand-specific set of anchor standards that serve as the goal for all levels of learning. Each *level-specific standard* corresponds to the same-numbered CCR anchor standard. In other words, each anchor standard identifying broad college and career readiness skills has a corresponding level-specific standard illustrating specific level-appropriate expectations that students in that level are working to acquire and master by the time they complete that level.



Reading Standards

Key Ideas and Details

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.				
Informational Text and Literature				
By the end of this level, students will be able to: • Ask and answer questions about key details in a text.	By the end of this level, students will be able to: • Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text..	By the end of this level, students will be able to: • Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. • Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	By the end of this level, students will be able to: • Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. • Apply this standard by citing specific textual evidence to support analysis of primary and secondary sources. • Apply this standard by citing specific textual evidence to support analysis of science and technical texts.	By the end of this level, students will be able to: • Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. • Apply this standard by citing specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information. • Apply this standard by citing specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.				
Informational Text				
By the end of this level, students will be able to: • Identify the main topic and retell key details of a text.	By the end of this level, students will be able to: • Determine the main idea of a text; recount the key details and explain how they support the main idea.	By the end of this level, students will be able to: • Determine the main idea of a text and explain how it is supported by key details; summarize the text. • Determine a theme of a story, drama, or poem from details in the text; summarize the text.	By the end of this level, students will be able to: • Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. • Apply this standard by determining the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	By the end of this level, students will be able to: • Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. • Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • Retell stories, using key details, and demonstrate understanding their message (e.g., teach a lesson, make you laugh, tell a scary story, tell about an event) or lesson.	By the end of this level, students will be able to: • Determine the author's purpose, message, lesson, or moral and explain how it is conveyed through key details in the text; summarize stories in correct sequence, including Alaskan fables and folktales.	By the end of this level, students will be able to: • Determine a theme or author's message or purpose of a story, drama, or poem using details and evidence from the text as support; summarize main ideas or events, in correct sequence, including how conflicts are resolved.	By the end of this level, students will be able to: • Determine a theme or central idea of a text and analyze its development over the course of the text; restate and summarize main ideas or events, in correct sequence, after reading a text.	By the end of this level, students will be able to: • Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; restate and summarize main ideas or events, in correct sequence, after reading a text.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Analyze how and why individuals, events, and ideas develop and interact over the course of a text.				
Informational Text				
By the end of this level, students will be able to: • Describe the connection between two individuals, events, ideas, or pieces of information in a text.	By the end of this level, students will be able to: • Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	By the end of this level, students will be able to: • Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	By the end of this level, students will be able to: • Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories). • Apply this standard by identifying key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered). • Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	By the end of this level, students will be able to: • Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text. • Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them. • Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • Describe characters, settings, major events and problem-solution in a story, play, or poem, using key details.	By the end of this level, students will be able to: • Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events (e.g., creating or solving a problem).	By the end of this level, students will be able to: • Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	By the end of this level, students will be able to: • Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.	By the end of this level, students will be able to: • Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).

Craft and Structure

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.				
Informational Text				
By the end of this level, students will be able to: • Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	By the end of this level, students will be able to: • Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a topic or subject area.	By the end of this level, students will be able to: • Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a topic or subject area.	By the end of this level, students will be able to: • Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	By the end of this level, students will be able to: • Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper). • Apply this standard by determining the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • Identify words and phrases in stories, plays, or poems that suggest feelings or appeal to the senses.	By the end of this level, students will be able to: • Determine the meaning of words and phrases as they are used in a text, distinguishing literal meanings from use of figurative language (e.g., exaggeration in tall tales).	By the end of this level, students will be able to: • Determine the meaning of words and phrases as they are used in a text, including use of figurative language and literary devices (e.g., imagery, metaphors, analogies, hyperbole).	By the end of this level, students will be able to: • Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	By the end of this level, students will be able to: • Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper). • Apply this standard by determining the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 5: Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.				
Informational Text				
By the end of this level, students will be able to: • Know and use various text features (e.g., headings, tables of contents, glossaries, hyperlinked menus, icons) to locate key facts or information in a text.	By the end of this level, students will be able to: • Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently. • Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.	By the end of this level, students will be able to: • Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text. • Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/ solution) of events, ideas, concepts, or information in two or more texts.	By the end of this level, students will be able to: • Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas. • Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.	By the end of this level, students will be able to: • Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter). • Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • Explain major differences between books that tell stories and books that give information (fiction, non-fiction, and poetry), drawing on a wide reading of a range of text types.	By the end of this level, students will be able to: • Describe the overall structure of a story, including describing how the beginning introduces the story (who, what, why, where), the middle describes the problem (how characters react or feel and what they do), and the ending concludes the action or tells how the problem was solved. • Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.	By the end of this level, students will be able to: • Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse and rhythm) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text. • Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.	By the end of this level, students will be able to: • Analyze the overall structure of a text: how a particular sentence, chapter, scene, or stanza fits into the overall work and analyzing how it contributes to the development of the characters, theme, setting, or plot. • Analyze the overall structure of a text: how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning, including analyzing the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.	By the end of this level, students will be able to: • Analyze how an author's choices concerning how to structure a text, use literary devices appropriate to genre (e.g., foreshadowing, imagery, allusion or symbolism), order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise. • Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 6: Assess how point of view or purpose shapes the content and style of a text.				
Informational Text				
By the end of this level, students will be able to: • Name the author and illustrator of a text and describe the role of each in presenting the ideas or information in a text.	By the end of this level, students will be able to: • Identify the main purpose of a text, including what the author wants to answer, explain, or describe. • Distinguish their own point of view from that of the author of a text.	By the end of this level, students will be able to: • Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. • Describe how a narrator's or speaker's point of view influences how events are described.	By the end of this level, students will be able to: • Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints. • Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).	By the end of this level, students will be able to: • Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose. • Apply this standard by analyzing a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature. • Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement). • Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • Identify who is telling the story at various points in the text (e.g., a character in the text or a narrator/story teller).	By the end of this level, students will be able to: • Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud. • Distinguish their own point of view from that of the narrator or those of the characters.	By the end of this level, students will be able to: • Describe how a narrator's or speaker's point of view (e.g., first person, third person) influences how events are described or how characters are developed and portrayed.	By the end of this level, students will be able to: • Analyze author's purpose and how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.	By the end of this level, students will be able to: • Analyze a particular point of view or cultural experience reflected in a work of literature (e.g., local culture, mythology), drawing on a wide reading of world literature. • Analyze a case in which grasping point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, understatement, or attitude).

Integration of Knowledge and Ideas

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 7: Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.				
Informational Text				
By the end of this level, students will be able to: • Use the illustrations and details in a text to describe its key ideas (e.g., maps, charts, photographs, political cartoons).	By the end of this level, students will be able to: • Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). • Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	By the end of this level, students will be able to: • Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. • Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.	By the end of this level, students will be able to: • Integrate information presented in different media or formats (e.g., in charts, graphs, photographs, videos, or maps) as well as in words to develop a coherent understanding of a topic or issue. • Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	By the end of this level, students will be able to: • Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text. • 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 (e.g., in an equation) into words. • Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, orally, quantitatively) as well as in words in order to address a question or solve a problem.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • Use illustrations and details in a story read or read aloud to describe its characters, events, setting, or problem-solution.	By the end of this level, students will be able to: • Explain how specific aspects of text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	By the end of this level, students will be able to: • Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text. • Analyze how visual and multimedia elements contribute to the meaning, tone, or personal appeal of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem, and especially those representative of students' cultures).	By the end of this level, students will be able to: • Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch (e.g., Shiloh). • Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors (e.g., Call of the Wild, Old Yeller, Brian's Song, The Miracle Worker, The Incredible Journey).	By the end of this level, students will be able to: • Analyze the representation of a subject or a key scene in two different artistic media, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus). • Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by an Alaskan Native playwright.)

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 8: Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.				
Informational Text				
By the end of this level, students will be able to: • Identify the reasons an author gives to support points in a text.	By the end of this level, students will be able to: • Describe how reasons support specific points the author makes in a text.	By the end of this level, students will be able to: • Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).	By the end of this level, students will be able to: • Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.	By the end of this level, students will be able to: • Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
Literature (NOT APPLICABLE for LITERATURE)				

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 9: Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.				
Informational Text				
By the end of this level, students will be able to: • Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	By the end of this level, students will be able to: • Compare and contrast the most important points and key details presented in two texts on the same topic.	By the end of this level, students will be able to: • Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.	By the end of this level, students will be able to: • Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.	By the end of this level, students will be able to: • Analyze seminal U.S. documents of historical and literary significance (e.g., Elizabeth Peratrovich's speech on the senate floor on the treatment of Alaska Natives, Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts. • Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, and the Bill of Rights) for their themes, purposes, and rhetorical features. • Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts. • Apply this standard by comparing and contrasting treatments of the same topic in several primary and secondary sources.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Literature				
By the end of this level, students will be able to: • With prompting and support, compare and contrast the adventures and experiences of characters in stories.	By the end of this level, students will be able to: • Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).	By the end of this level, students will be able to: • Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and plot development.	By the end of this level, students will be able to: • Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.	By the end of this level, students will be able to: • Analyze how an author draws on and transforms source material in a specific work (e.g., how an Alaskan Native author or playwright treats a theme or topic and how a later playwright or author draws on that work in creating their own). • Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.

Range of Reading and Level of Text Complexity

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 10: Read and comprehend a range of complex literary and informational texts independently and proficiently.				
Informational Text and Literature				
ATOS	2.75 – 5.14	4.97 – 7.03	7.00 – 9.98	9.67 –14.10
Degrees of Reading Power®	42 – 54	52 – 60	57 – 67	62 – 74
Flesch-Kincaid	1.98 – 5.34	4.51 – 7.73	6.51 – 10.34	8.32 – 14.2
The Lexile Framework®	420 – 820	740 – 1010	925 – 1185	1050 – 1385
Reading Maturity Metric	3.53 – 6.13	5.42 – 7.92	7.04 – 9.57	8.41 – 12.00
Source Rater	0.05 – 2.48	0.84 – 5.75	4.11 – 10.66	9.02 – 14.50
Grade equivalent	2nd – 3rd	4th – 5th	6th – 8th	9th – 12th
Literature				
By the end of all levels, students will be able to read and comprehend a range of literature from a variety of cultures within a complexity band appropriate to the level independently and proficiently.				

Writing Standards

Text Types and Purposes

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.				
By the end of this level, students will be able to: • Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion or preference, supply a fact (e.g., because race cars go faster than…) or reason for the opinion, and end with a sentence that restates their opinion related to a feeling or emotion (e.g., it makes me laugh; that was the scariest part).	By the end of this level, students will be able to: • Write opinion pieces on topics or texts, supporting a point of view with fact- or text-based reasons (e.g., I like large dogs better than small dogs because they can pull a sled and run for a longer time than small dogs can). a. Introduce the topic or text they are writing about clearly, state an opinion, and create an organizational structure that lists fact- or text-based reasons. b. Provide reasons that support the opinion. c. Link opinion and reasons using words and phrases (e.g., *because, therefore*, *since*, *for example*).	By the end of this level, students will be able to: • Write opinion pieces on topics or texts, supporting a point of view with fact- or text-based reasons and information.[7] a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. b. Provide logically ordered reasons that are supported by facts and details. c. Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically, most of all).	By the end of this level, students will be able to: • Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.	By the end of this level, students will be able to: • Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, 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.

[7] To show how the standards for Writing and Speaking and Listening progress, differences in wording from level to level are underlined.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	d. Provide a concluding statement or section that reinforces or restates the opinion.	d. Provide a concluding statement or section related to the opinion presented.	d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from and supports the argument presented.	c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from and supports the argument presented.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.				
By the end of this level, students will be able to: • Write informative/ explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure (e.g., restate at the end the most interesting fact or the most important idea shared).	By the end of this level, students will be able to: • Write informative/ explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include labeled or captioned visuals when useful to aiding comprehension. b. Develop the topic with facts, definitions, details, and explanations that support the focus. c. Use linking words and phrases (e.g., *also*, *another*, *and*, *more*, *but*) to connect ideas within categories of information. d. Provide a concluding statement or section that paraphrases the focus of the text.	By the end of this level, students will be able to: • Write informative/ explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly, provide a general observation and focus, and group related information logically in paragraphs and sections; include formatting (e.g., headings), labeled or captioned visuals, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples that support the topic.	By the end of this level, students will be able to: • Write informative/ explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. [This includes the narration of historical events, scientific procedures/experiments, or technical processes.] a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	By the end of this level, students will be able to: • Write informative/ explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. [This includes the narration of historical events, scientific procedures/ experiments, or technical processes.] a. Introduce a topic and organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
		c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast, for example*, *also*, *because*). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section that paraphrases the focus of the text or explanation presented.	b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Use narrative writing to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.				
By the end of this level, students will be able to: Use narrative writing to recount two or more appropriately sequenced events, include some details regarding what happened, who was there, use linking words to signal event order (e.g., first, next, then), and provide an ending or some sense of closure (e.g., how the problem was solved; how someone felt at the end).	By the end of this level, students will be able to: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use linking words to signal event order, and provide one or more concluding sentences that restate or emphasize a feeling or lesson learned.	Note: Students' narrative skills continue to grow in these levels as students work to incorporate narrative elements effectively into their arguments and informative/explanatory texts.		

Production and Distribution of Writing

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.				
Note: This standard does not begin until students are at the Beginning Basic Education level.	By the end of this level, students will be able to: • With guidance and support from the teacher, produce writing in which the development and organization are appropriate to task and purpose.	By the end of this level, students will be able to: • Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.	By the end of this level, students will be able to: • Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	By the end of this level, students will be able to: • Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.				
By the end of this level, students will be able to: • With guidance and support, focus on a topic, respond to questions and suggestions from peers, and add concrete and sensory details to strengthen writing as needed.	By the end of this level, students will be able to: • With guidance and support from peers and others, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 at this level.)	By the end of this level, students will be able to: • With guidance and support from peers and others, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1–3 at this level.)	By the end of this level, students will be able to: • With some guidance and support from peers and others, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. (Editing for conventions should demonstrate command of Language standards 1–3 at this level.)	By the end of this level, students will be able to: • Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 at this level.)
Anchor 6: Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.				
By the end of this level, students will be able to: • With guidance and support, use a variety of digital tools to produce and publish writing, including in collaboration with peers.	By the end of this level, students will be able to: • With guidance and support, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others and to locate information about topics.	By the end of this level, students will be able to: • With some guidance and support, use technology, including the Internet, to produce, edit, and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	By the end of this level, students will be able to: • Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.	By the end of this level, students will be able to: • Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Research to Build and Present Knowledge

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 7: Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.				
By the end of this level, students will be able to: • Participate in shared research and writing projects (e.g., explore a number of resources on a common topic and summarize the information learned).	By the end of this level, students will be able to: • Conduct short research projects that build knowledge about a topic.	By the end of this level, students will be able to: • Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.	By the end of this level, students will be able to: • Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.	By the end of this level, students will be able to: • Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 8: Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.				
By the end of this level, students will be able to: • With guidance and support, recall information from experiences or gather information from provided sources to answer a question.	By the end of this level, students will be able to: • Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.	By the end of this level, students will be able to: • Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.	By the end of this level, students will be able to: • Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	By the end of this level, students will be able to: • Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 9: Draw evidence from literary or informational texts to support analysis, reflection, and research.				
Note: This standard does not begin until students are at the Low Intermediate Basic Education level.		By the end of this level, students will be able to: • Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Reading standards from this level to literature (e.g., Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text [e.g., how characters interact, how conflicts are resolved]."). b. Apply Reading standards from this level to informational text (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s)").	By the end of this level, students will be able to: • Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Reading standards from this level to literature (e.g., "Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments"). b. Apply Reading standards from this level to literary nonfiction (e.g., "Analyze how a text makes connections among and distinctions between individuals' ideas or events").	By the end of this level, students will be able to: • Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply Reading standards from this level to literature (e.g., "Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone"). b. Apply Reading standards from this level to literary nonfiction (e.g., "Integrate quantitative or technical analysis with qualitative analysis in print or digital text").

Range of Writing

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 10: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.				
Note: This standard does not begin until students are at the Beginning Basic Education level.	By the end of this level, students will be able to: • Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	By the end of this level, students will be able to: • Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	By the end of this level, students will be able to: • Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	By the end of this level, students will be able to: • Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Speaking and Listening Standards

Comprehension and Collaboration

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.				
By the end of this level, students will be able to: • Participate in collaborative conversations with diverse partners in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care; speaking one at a time about the topics and texts under discussion; using a talking stick or passing an agreed upon item; watch for non-verbal messages, signals, and cues like raising eyebrows). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.	By the end of this level, students will be able to: • Engage effectively in a range of collaborative discussions (one- on-one, in groups, and teacher- led) with diverse partners, building on others' ideas and expressing their own clearly.[8] a. After learning a protocol (e.g., Socratic method), come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	By the end of this level, students will be able to: • Engage effectively in a range of collaborative discussions (one- on-one, in groups, and teacher- led) with diverse partners, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles.	By the end of this level, students will be able to: • Engage effectively in a range of collaborative discussions (one- on-one, in groups, and teacher- led) with diverse partners, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.	By the end of this level, students will be able to: • Initiate and participate effectively in a range of collaborative discussions (one- on-one, in groups, and teacher- led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

[8] To show how the standards for Writing and Speaking and Listening progress, differences in wording from level to level are underlined.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
c. Ask questions to clear up any confusion about the topics and texts under discussion.	b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. d. Explain their own ideas and understanding in light of the discussion.	c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	b. Follow rules for collegial discussions (e.g., establishing norms: taking turns, paraphrasing, respecting diverse viewpoints), and decision-making (e.g., coming to consensus), track progress toward specific goals and deadlines, and define individual roles as needed. c. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas. d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.				
By the end of this level, students will be able to: • Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.	By the end of this level, students will be able to: • Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	By the end of this level, students will be able to: • Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally. • Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	By the end of this level, students will be able to: • Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.	By the end of this level, students will be able to: • Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data or information.
Anchor 3: Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.				
By the end of this level, students will be able to: • Ask and answer questions in order to seek help, get information, or clarify something that is not understood.	By the end of this level, students will be able to: • Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.	By the end of this level, students will be able to: • Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence (e.g., use a graphic organizer or note cards completed while listening to summarize or paraphrase key ideas presented by a speaker).	By the end of this level, students will be able to: • Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.	By the end of this level, students will be able to: • Identify and evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

Presentation of Knowledge and Ideas

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and that the organization, development, and style are appropriate to task, purpose, and audience.				
By the end of this level, students will be able to: • Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	By the end of this level, students will be able to: • Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	By the end of this level, students will be able to: • Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	By the end of this level, students will be able to: • Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	By the end of this level, students will be able to: • Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
Anchor 5: Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.				
By the end of this level, students will be able to: • Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	By the end of this level, students will be able to: • Create audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; use techniques that engage the listener (e.g., inflection, different voices); and add visual displays when appropriate *to emphasize or enhance certain facts or details*.	By the end of this level, students will be able to: • Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.	By the end of this level, students will be able to: • Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	By the end of this level, students will be able to: • Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 6: Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.				
By the end of this level, students will be able to: • Speak audibly and express thoughts, feelings, and ideas clearly. • Produce complete sentences when appropriate to task and situation. (See Language standards 1 and 3.)	By the end of this level, students will be able to: • Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See Language standards 1 and 3.)	By the end of this level, students will be able to: • Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse or dialects and linguistic cues are appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See Language standards 1 and 3.)	By the end of this level, students will be able to: • Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See Language standards 1 and 3 for specific expectations.)	By the end of this level, students will be able to: • Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See Language standards 1 and 3 for specific expectations.)

Language Standards

Conventions of Standard English

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.				
By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Print all upper- and lowercase letters. b. Use common, proper, and possessive nouns. c. Use singular and plural nouns with matching verbs in basic sentences (e.g., *He walks*; *We walk*). d. Use personal, possessive, and indefinite pronouns (e.g., *I*, *me*, *my*; *they*, *them*, *their*; *anyone*, *everything*). e. Use verbs to convey a sense of past, present, and future (e.g., *Yesterday I walked home*; *Today I walk home*; *Tomorrow I will walk home*).	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use collective nouns (e.g., *group*). b. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. c. Form and use regular and irregular plural nouns. d. Use reflexive pronouns (e.g., *myself*, *ourselves*). e. Form and use the past tense of frequently occurring irregular verbs (e.g., *sat*, *hid*, *told*). f. Use abstract nouns (e.g., *childhood*).	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. b. Use relative pronouns (*who*, *whose*, *whom*, *which*, *that*) and relative adverbs (*where*, *when*, *why*). c. Form and use the progressive (e.g., *I was walking*; *I am walking*; *I will be walking*) verb tenses. d. Use modal auxiliaries (e.g., *can*, *may*, *must*) to convey various conditions.	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Ensure that pronouns are in the proper case (subjective, objective, possessive). b. Use intensive pronouns. c. Recognize and correct inappropriate shifts in pronoun number and person. d. Recognize and correct vague or unclear pronouns. e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. a. Use parallel structure. b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
f. Use frequently occurring adjectives. g. Use frequently occurring nouns and verbs. h. Use frequently occurring conjunctions (e.g., *and*, *but*, *or*, *so*, *because*). i. Use determiners (e.g., articles, demonstratives). j. Use frequently occurring prepositions (e.g., *during*, *beyond*, *toward*). k. Understand and use question words (interrogatives) (e.g., *who*, *what*, *where*, *when*, *why*, *how*). l. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.	g. Form and use regular and irregular verbs. h. Form and use the simple (e.g., *I walked*; *I walk*; *I will walk*) verb tenses. i. Ensure subject-verb and pronoun-antecedent agreement. j. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. k. Use coordinating and subordinating conjunctions. l. Produce simple, compound, and complex sentences. m. Produce, expand, and rearrange complete simple and compound sentences (e.g., *The man watched the movie; The man watched the movie; The action movie was watched by the man*).	e. Form and use the perfect (e.g., *I had walked*; *I have walked*; *I will have walked*) verb tenses. f. Use verb tense to convey various times, sequences, states, and conditions. g. Recognize and correct inappropriate shifts in verb tense. h. Order adjectives within sentences according to conventional patterns (e.g., *a small red bag* rather than *a red small bag*). i. Form and use prepositional phrases. j. Use correlative conjunctions (e.g., *either/or*, *neither/nor*). k. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. l. Correctly use frequently confused words (e.g., *to*, *too*, *two; there*, *their*).	f. Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences. g. Form and use verbs in the active and passive voice. h. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood. i. Recognize and correct inappropriate shifts in verb voice and mood. j. Explain the function of phrases and clauses in general and their function in specific sentences. k. Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas. l. Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.	

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.				
By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize the first word in a sentence and the pronoun *I*. b. Capitalize dates and names of people. c. Recognize and name end punctuation. d. Use end punctuation for sentences. e. Use commas in dates and to separate single words in a series. f. Write a letter or letters for most consonant and short- vowel sounds (phonemes). g. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Capitalize holidays, product names, and geographic names. b. Capitalize appropriate words in titles. c. Use commas in greetings and closings of letters. d. Use commas in addresses. e. Use commas and quotation marks in dialogue. f. Use an apostrophe to form contractions and frequently occurring possessives. g. Form and use possessives. h. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting*, *smiled*, *cries*, *happiness*).	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use correct capitalization. b. Use commas and quotation marks to mark direct speech and quotations from a text. c. Use punctuation to separate items in a series. d. Use a comma to separate an introductory element from the rest of the sentence. e. Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*). f. Use underlining, quotation marks, or italics to indicate titles of works.	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use punctuation (commas, parentheses, ellipsis, dashes) to set off nonrestrictive/ parenthetical elements. b. Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie*). c. Use an ellipsis to indicate an omission. d. Spell correctly.	By the end of this level, students will be able to: • Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
h. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words. i. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.	i. Generalize learned spelling patterns when writing words (e.g., *cage → badge*; *boy → boil*). j. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words. k. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.	g. Use a comma before a coordinating conjunction in a compound sentence. h. Spell level-appropriate words correctly, consulting references as needed.		

Knowledge of Language

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.				
Note: This standard does not begin until students are at the Beginning Basic Education level.	By the end of this level, students will be able to: • Use knowledge of language and its conventions when writing, speaking, reading, or listening.	By the end of this level, students will be able to: • Use knowledge of language and its conventions when writing, speaking, reading, or listening. a. Choose words and phrases to convey ideas precisely.	By the end of this level, students will be able to: • Use knowledge of language and its conventions when writing, speaking, reading, or listening.	By the end of this level, students will be able to: • Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	a. Choose words and phrases for effect. b. Recognize and observe differences between the conventions of spoken and written standard English.	b. Choose punctuation for effect. c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse or dialects and linguistic cues are appropriate (e.g., small-group discussion). d. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. e. Compare and contrast the varieties of English and Alaskan languages (e.g., dialects, registers) used in stories, dramas, or poems (e.g., Hunsaker & Simard's *Yup'ik Antigone*, Wallis' *Two Old Women*, Huntington's *On the Edge of Nowhere*, Loewen's *Gaining Daylight*, Henriquez's *Book of Unknown Americans*, Zamora's *Solito*, Ramos' *Stranger*, Vargas' *Dear America: Notes of an Undocumented Citizen*.)	a. Vary sentence patterns for meaning, reader/listener interest, and style. b. Maintain consistency in style and tone. c. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.	a. Vary syntax for effect; apply an understanding of syntax to the study of complex texts when reading (e.g., Wallis' *Two Old Women*, Zamora's *Solito*, Twain's *Tom Sawyer*).

Vocabulary Acquisition and Use

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.				
By the end of this level, students will be able to: • Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Use frequently occurring affixes as a clue to the meaning of a word. c. Identify frequently occurring root words (e.g., *look*) and their inflectional forms (e.g., *looks*, *looked*, *looking*).	By the end of this level, students will be able to: • Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy*/*unhappy*, *tell*/*retell*). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition*, *additional*).	By the end of this level, students will be able to: • Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies. a. Use context (e.g., definitions, examples, restatements, cause/effect relationships, and comparisons in text) as a clue to the meaning of a word or phrase. b. Use common, level-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *telegraph, autograph, photograph*, *photosynthesis*).	By the end of this level, students will be able to: • Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, level-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience*, *auditory*, *audible*).	By the end of this level, students will be able to: • Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	d. Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., *birdhouse*, *lighthouse*, *housefly*; *bookshelf*, *notebook*, *bookmark*). e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.	c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
Anchor 5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.				
By the end of this level, students will be able to: • With guidance and support, demonstrate understanding of word relationships and nuances in word meanings. a. Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.	By the end of this level, students will be able to: • Demonstrate understanding of word relationships and nuances in word meanings. a. Distinguish the literal and non-literal meanings of words and phrases in context (e.g., *take steps*).	By the end of this level, students will be able to: • Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figurative language, including similes and metaphors, in context.	By the end of this level, students will be able to: • Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret the intent or meaning of figures of speech (e.g., literary, religious, and mythological allusions; euphemisms) as used in context.	By the end of this level, students will be able to: • Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., euphemism, oxymoron, hyperbole, paradox) in context and analyze their role in the text.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
b. Define words by category and by one or more key attributes (e.g., a *duck* is a bird that swims; a *tiger* is a large cat with stripes). c. Identify real-life connections between words and their use (e.g., note places at home that are *cozy*). d. Distinguish shades of meaning among verbs differing in manner (e.g., *look*, *peek*, *glance*, *stare*, *glare*, *scowl*) and adjectives differing in intensity (e.g., *large*, *gigantic*) by defining or choosing them or by acting out the meanings.	b. Identify real-life connections between words and their use (e.g., describe people who are *friendly* or *helpful*). c. Distinguish shades of meaning among related words (e.g., words that describe states of mind or degrees of certainty, such as *knew*, *believed*).	b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.	b. Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., refined, respectful, polite, diplomatic, condescending).	b. Analyze nuances in the meaning of words with similar denotation (definition) or determine the meaning of analogies.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 6: Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college- and career-readiness level; demonstrate independence in gathering vocabulary knowledge when encountering a word or phrase important to comprehension or expression.				
By the end of this level, students will be able to: • Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).	By the end of this level, students will be able to: • Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other people are happy, that makes me happy). • Acquire and use accurately level-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., After dinner that night we went looking for them).	By the end of this level, students will be able to: • Acquire and use accurately level-appropriate general academic and domain-specific words and phrases, including those that: a. signal precise actions, emotions, or states of being (e.g., *quizzed*, *whined*, *stammered*). b. are basic to a particular topic (e.g., *wildlife*, *conservation*, and *endangered* when discussing animal preservation). c. signal contrast, addition, and other logical relationships (e.g., *however*, *although*, *nevertheless*, *similarly*, *moreover*, *in addition*).	By the end of this level, students will be able to: • Acquire and use accurately level-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.	By the end of this level, students will be able to: • Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

What It Looks Like in Practice

In the following scenario, an instructor who works with students at different levels has specific reading objectives in mind for her lesson. She selects two standards to guide her lesson development, adapting the lesson based on her students' level as they work toward the same common goal.

Implementing the Standards for English/Language Arts to Support Multiple Levels

Teresa works at a very small Alaskan program, with most of her students falling into the Beginning Basic Education and Low Intermediate Basic Education levels. With such a small program, most students receive one-on-one tutoring. When implementing the standards, she uses a personalized approach so that she can meet the diverse needs of her students.

Teresa is planning some upcoming lessons using an Alaskan text, *Tanaina Tales from Alaska* by Bill Vaudrin, a collection of short stories/legends from Southwestern Alaska, to build her students' reading proficiency. After looking through the Reading Standards, she sees several ways that she can integrate activities that will help students make progress in meeting the standards. She wants to focus her lesson on two standards that she plans to work on in the same lesson: Reading Anchor 1, "Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text" and Reading Anchor 2, "Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas." There are other standards that she will inevitably touch on as well, but she has these two in mind as she prepares the lesson.

Because she is working with students from different levels, the lesson will look a little different depending on the level of the student(s) she is working with. For her students that are at the Beginning Basic Education level, she will have them select and read a story that is at the appropriate level and work with them to explain the who, what, where, when, and why of the story. She will also have her students discuss the message, moral, or lesson behind the story, recounting details from the story and explaining how they support the message, moral or lesson. With her Low Intermediate Basic Education level students, she will go one step further and ask them to refer to details and quotes from the text to explain what the text says explicitly as well as summarize the story.

The Alaska Adult Education Content Standards for Mathematics[9]

Introduction to Mathematics Standards

The Alaska Adult Education Content Standards for Mathematics represent a significant shift toward higher expectations for adult learners. These standards reflect 3 shifts:

1. A shift toward focusing instruction strongly where the standards focus.
2. A shift toward designing learning around coherent progressions level to level.
3. A shift toward pursuing conceptual understanding, procedural skill and fluency, and application—all with equal intensity.

The mathematics standards set a high bar to prepare Alaska students to be competitive academically and in their careers. These standards are a set of specific, rigorous expectations that build students' conceptual understanding, mathematical language, and application of processes and procedures coherently from one level to the next so all students will be prepared for success. The focus areas for each level and each conceptual category narrative establish a depth of knowledge as opposed to a breadth of knowledge across multiple standards in each level or content area.

The standards for mathematics stress both conceptual understanding and procedural skills to ensure students learn and can apply the critical information needed to succeed at each level. In reading the standards, it is important to keep in mind that the standards identify the knowledge and skills students are able to demonstrate ***when they exit or master that level***. In other words, students within that level are not expected to have that knowledge or skill yet; rather students are working towards those, which may involve building some very foundational skills.

Organization of Mathematics Standards

The Alaska Mathematics Standards define what students should understand and be able to do in their study of mathematics. Teachers ensure students achieve standards by using a variety of instructional strategies based on their students' needs.

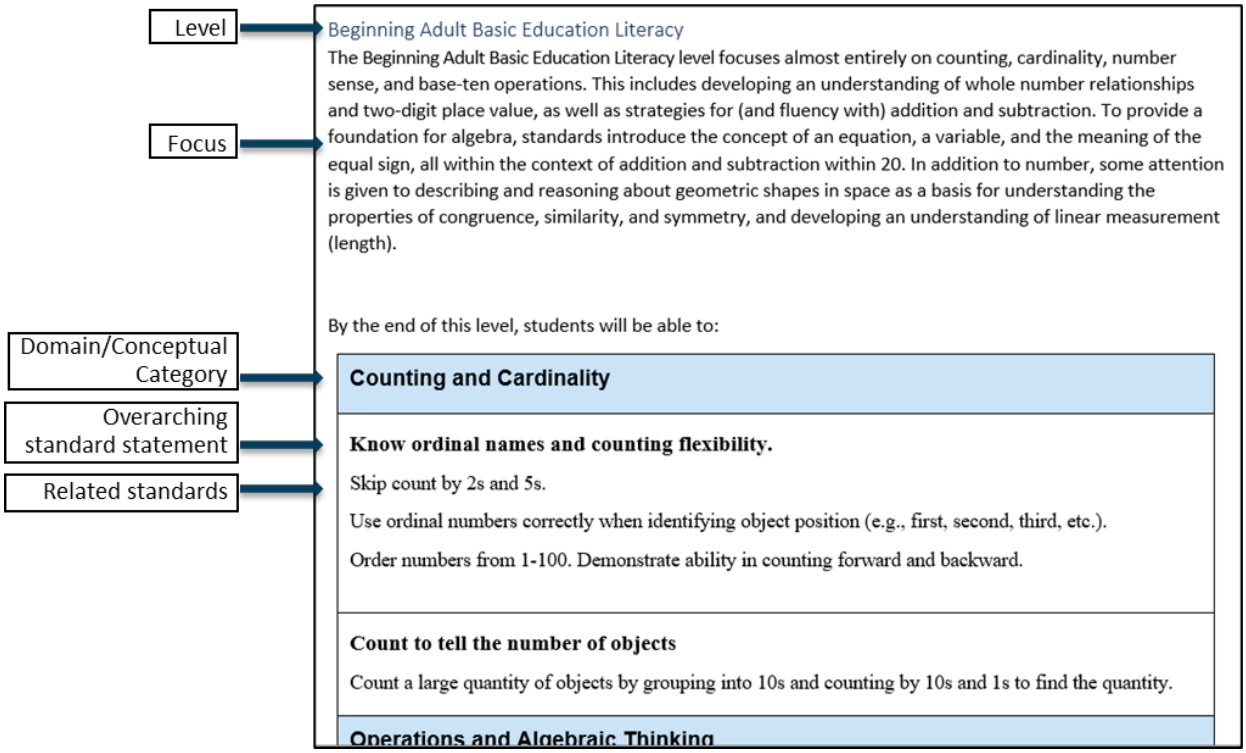
The standards are divided into two areas of equal importance:

1. **The Standards for Mathematical Practice** are embedded at every level to establish habits of mind that will empower learners to become mathematically literate. Instructional approaches that promote students' development of the Practices are critical to procedural fluency in mathematics.
2. **The Standards for Mathematical Content** are level specific, organized by conceptual category or domain. The standards provide a scaffold that allows students to become increasingly more proficient in understanding and using mathematics. There is a gradual, steady progression leading to college and career readiness by the time students achieve the standards for Adult Secondary Education.

[9] Adapted from the Alaska English/Language Arts and Mathematics Content Standards and the College and Career Readiness Standards for Adult Education.

The standards have been bundled into five groupings that reflect adult education levels of learning: Beginning Adult Basic Education Literacy, Beginning Basic Education, Low Intermediate Basic Education, High Intermediate Basic Education, and Adult Secondary Education. The section for each level begins with a short summary of the focus for that level. The focus guides teachers toward the critical areas of emphasis for instruction.

The standards for mathematics stress both conceptual understanding and procedural skills to ensure students learn and can apply the critical information needed to succeed at each level. This creates a learning progression where the mathematics learned at the Beginning Adult Basic Education Literacy and Beginning Basic Education levels provides the foundation for the study of statistics, probability, ratio and proportion, geometry, and algebra in the Low and High Intermediate Basic Education levels. This is, in turn, the base upon which the knowledge needed for success in colleges and careers can be developed in the Adult Secondary Education levels.



Progression of Mathematics Standards

While the mathematics standards help students progress from one level to the next, they do not have a common anchor standard across all levels like the standards for English/Language Arts or Digital Literacy. The tables below demonstrate their progression across the domains or conceptual categories, listing the overarching standard statements for each level within that domain.

Counting and Cardinality

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
1. Know ordinal names and counting flexibility. 2. Count to tell the number of objects.	NOTE: This domain/ conceptual category is only addressed at the Beginning Adult Basic Education Literacy level.			

The Number System

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	NOTE: This domain/ conceptual category is not addressed until the Low Intermediate Basic Education level.	1. Compute fluently with multi-digit numbers and find common factors and multiples. 2. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	1. Apply and extend previous understandings of numbers to the system of rational numbers. 2. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. 3. Know that there are numbers that are not rational, and approximate them by rational numbers. 4. Understand ratio concepts and use ratio reasoning to solve problems. 5. Analyze proportional relationships and use them to solve real-world and mathematical problems.	NOTE: This domain/ conceptual category is not addressed after the High Intermediate Basic Education level.

Number and Quantity

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
			NOTE: This domain/ conceptual category is only addressed at the Adult Secondary Education level.	**The Real Number System** 1. Extend the properties of exponents to rational exponents. **Quantities** 1. Reason quantitatively and use units to solve problems.

Operations and Algebraic Thinking

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
1. Represent and solve problems involving addition and subtraction. 2. Add and subtract with 20. 3. Understand and apply properties of operations and the relationship between addition and subtraction. 4. Work with addition and subtraction.	1. Represent and solve problems involving addition and subtraction. 2. Add and subtract with 20. 3. Understand properties of multiplication and the relationship between multiplication and division. 4. Represent and solve problems involving multiplication and division. 5. Multiply and divide within 100. 6. Solve problems involving the four operations and identify and explain patterns in arithmetic.	1. Use the four operations with whole numbers to solve problems. 2. Gain familiarity with factors and multiples. 3. Generate and analyze patterns. 4. Write and interpret numerical expressions.	NOTE: This domain/ conceptual category is not addressed after the High Intermediate Basic Education level.	

Expressions and Equations

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	NOTE: This domain/ conceptual category is not addressed until the Low Intermediate Basic Education level.	1. Apply and extend previous understandings of arithmetic to algebraic expressions. 2. Reason about and solve one-variable equations and inequalities. 3. Represent and analyze quantitative relationships between dependent and independent variables.	1. Use properties of operations to generate equivalent expressions. 2. Solve real-life and mathematical problems using numerical and algebraic expressions and equations. 3. Work with radicals and integer exponents. 4. Understand the connections between proportional relationships, lines, and linear equations. 5. Analyze and solve linear equations and pairs of simultaneous linear equations.	NOTE: This domain/ conceptual category is not addressed after the High Intermediate Basic Education level.

Algebra

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
			NOTE: This domain/ conceptual category is only addressed at the Adult Secondary Education level.	**Seeing Structure in Expressions** 1. Interpret the structure of expressions. 2. Write expressions in equivalent forms to solve problems. **Arithmetic with Polynomials and Rational Expressions** 1. Perform arithmetic operations on polynomials. 2. Rewrite rational expressions. **Creating Equations** 1. Create equations that describe numbers or relationships. **Reasoning with Equations and Inequalities** 1. Understand solving equations as a process of reasoning and explain the reasoning. 2. Solve equations and inequalities in one variable. 3. Solve systems of equations. 4. Represent and solve equations and inequalities graphically.

Number and Operations in Base Ten

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
1. Understand place value. 2. Use place value understanding and the properties of operations to add and subtract.	1. Understand place value. 2. Use place value understanding and properties of operations to add and subtract. 3. Use place value understanding and properties of operations to perform multi-digit arithmetic.	1. Generalize place value understanding for multi-digit whole numbers. 2. Use place value understanding and properties of operations to perform multi-digit arithmetic. 3. Understand the place value system. 4. Perform operations with multi-digit whole numbers and with decimals to hundredths.	NOTE: This domain/ conceptual category is not addressed after the Low Intermediate Basic Education level.	

Number and Operations—Fractions

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
NOTE: This domain/ conceptual category is not addressed until Beginning Basic Education level.	1. Develop understanding of fractions as numbers.	1. Extend understanding of fraction equivalence and ordering. 2. Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers. 3. Understand decimal notation for fractions, and compare decimal fractions. 4. Use equivalent fractions as strategy to add and subtract fractions. 5. Apply and extend previous understanding of multiplication and division to multiply and divide fractions.	NOTE: This domain/ conceptual category is not addressed after the High Intermediate Basic Education level.	

Measurement and Data

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
1. Represent and interpret data. 2. Measure lengths indirectly and by iterating length units.	1. Represent and interpret data. 2. Measure and estimate lengths in standard units. 3. Relate addition and subtraction to length. 4. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. 5. *Geometric measurement*: understand concepts of area and relate to area of multiplication and addition. 6. *Geometric measurement*: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	1. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 2. Geometric measurement: understand concepts of angle and measure angles. 3. Convert like measurement units within a given measurement system. 4. Represent and interpret data. 5. *Geometric measurement*: understand concepts of volume and relate volume to multiplication and to addition.	NOTE: This domain/ conceptual category is not addressed after the Low Intermediate Basic Education level.	

Geometry

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
1. Reason with shapes and their attributes. 2. Analyze, compare, create, compose shapes.	1. Reason with shapes and their attributes.	1. Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 2. Graph points on the coordinate plane to solve real-world and mathematical problems. 3. Classify two-dimensional figures into categories based on their properties. 4. Solve real-world and mathematical problems involving area, surface area, and volume.	1. Draw, construct, and describe geometrical figures and describe the relationships between them. 2. Solve real-world and mathematical problems involving angle, measure, area, surface area, and volume. 3. Understand congruence and similarity using physical models, transparencies, or geometry software. 4. Understand and apply the Pythagorean Theorem.	**Congruence** 1. Experiment with transformations in the plane. **Similarity, Right Triangles, and Trigonometry** 1. Prove theorems involving similarity. **Geometric Measurement and Dimension** 1. Explain volume formulas and use them to solve problems. **Modeling with Geometry** 1. Apply geometric concepts in modeling situations.

Ratios and Proportional Relationships

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	NOTE: This domain/ conceptual category is only addressed at the Low Intermediate Basic Education level.	1. Understand ratio concepts and use ratio reasoning to solve problems.	NOTE: This domain/ conceptual category is only addressed at the Low Intermediate Basic Education level.	

Statistics and Probability

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
	NOTE: This domain/ conceptual category is not addressed until the Low Intermediate Basic Education level.	1. Develop understanding of statistical variability. 2. Summarize and describe distributions.	1. Summarize and describe distributions. 2. Use random sampling to draw inferences about a population. 3. Draw informal comparative inferences about two populations. 4. Investigate chance processes and develop, use, and evaluate probability models. 5. Investigate patterns of association in bivariate data.	**Interpreting Categorical and Quantitative Data** 1. Summarize, represent, and interpret data on a single count or measurable variable. 2. Summarize, represent, and interpret data on two categorical and quantitative variables. 3. Interpret linear models.

Functions

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
		NOTE: This domain/ conceptual category is not addressed until the High Intermediate Basic Education level.	1. Define, evaluate, and compare functions. 2. Use functions to model relationships between quantities.	**Interpreting Functions** 1. Understand the concept of a function and use function notation. 2. Interpret functions that arise in applications in terms of the context. 3. Analyze functions using different representations. **Building Functions** 1. Build a function that models a relationship between two quantities. **Linear, Quadratic, and Exponential Models** 1. Construct and compare linear, quadratic, and exponential models and solve problems. 2. Interpret expressions for functions in terms of the situation they model.

Standards for Mathematical Practice

Make sense of problems and persevere in solving them. (MP.1)
Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Less experienced students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.
Reason abstractly and quantitatively. (MP.2)
Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.
Construct viable arguments and critique the reasoning of others. (MP.3)
Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Less experienced students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later. Later, students learn to determine domains to which an argument applies. Students at all levels can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.
Model with mathematics. (MP.4)
Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. This might be as simple as writing an addition equation to describe a situation. A student might apply proportional reasoning to plan a school event or analyze a problem in the community. A student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships

mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

Use appropriate tools strategically. (MP.5)

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software.

Proficient students are sufficiently familiar with tools appropriate for their course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

Attend to precision. (MP.6)

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. Less experienced students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

Look for and make use of structure. (MP.7)

Mathematically proficient students look closely to discern a pattern or structure. Students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x2+ 9x + 14$, students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 – 3(x – y)2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

Look for and express regularity in repeated reasoning. (MP.8)

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Early on, students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, students might abstract the equation $(y – 2)/(x – 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x–1)(x+1)$, $(x–1)(x2+x+1)$, and $(x–1)(x3 +x2+x+1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Standards for Mathematical Content

Beginning Adult Basic Education Literacy

The Beginning Adult Basic Education Literacy level focuses almost entirely on counting, cardinality, number sense, and base-ten operations. This includes developing an understanding of whole number relationships and two-digit place value, as well as strategies for (and fluency with) addition and subtraction. To provide a foundation for algebra, standards introduce the concept of an equation, a variable, and the meaning of the equal sign, all within the context of addition and subtraction within 20. In addition to number, some attention is given to describing and reasoning about geometric shapes in space as a basis for understanding the properties of congruence, similarity, and symmetry, and developing an understanding of linear measurement (length).

By the end of this level, students will be able to:

Counting and Cardinality
Know ordinal names and counting flexibility. Skip count by 2s and 5s. Use ordinal numbers correctly when identifying object position (e.g., first, second, third, etc.). Order numbers from 1-100. Demonstrate ability in counting forward and backward.
Count to tell the number of objects. Count a large quantity of objects by grouping into 10s and counting by 10s and 1s to find the quantity.
Operations and Algebraic Thinking
Represent and solve problems involving addition and subtraction. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Understand and apply properties of operations and the relationship between addition and subtraction. Apply properties of operations as strategies to add and subtract*. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)* Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*
Add and subtract with 20. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2). Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
Work with addition and subtraction. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.* Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □*

Number and Operations in Base Ten
Understand place value. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
Use place value understanding and the properties of operations to add and subtract. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Measurement and Data
Measure lengths indirectly and by iterating length units. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*
Represent and interpret data. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
Geometry
Analyze, compare, create, compose shapes. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/ "corners") and other attributes (e.g., having sides of equal length).
Reason with shapes and their attributes. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter- circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[10]

[10] Students do not need to learn formal names such as "right rectangular prism."

Beginning Basic Education

The Beginning Basic Education level emphasizes understanding base-ten notation (place value for whole numbers to 1000), developing fluency in addition and subtraction (to 3 digits), understanding and exploring strategies for multiplication and division (within 100), and a foundational understanding of fractions. These skills will prepare students for work with rational numbers, ratios, rates, and proportions in subsequent levels. A critical area of focus is on gaining a foundational understanding of fractions and preparing the way for work with rational numbers. In the areas of measurement and geometry, using standard units of measure and developing understanding of the structure of rectangular arrays and areas are priorities, as well as analyzing two- dimensional shapes as a foundation for understanding area, volume, congruence, similarity and symmetry.

By the end of this level, students will be able to:

Operations and Algebraic Thinking
Represent and solve problems involving addition and subtraction. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
Add and subtract with 20. Fluently add and subtract within 20 using mental strategies. Know from memory all sums of two one- digit numbers.
Represent and solve problems involving multiplication and division. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.* Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8*. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, 6 × 6 = ?.*
Understand properties of multiplication and the relationship between multiplication and division. Apply properties of operations as strategies to multiply and divide.[15] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)* Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*
Multiply and divide within 100. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. Know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.
Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.[16]

Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

Number and Operations in Base Ten

Understand place value.
Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

a. 100 can be thought of as a bundle of ten tens — called a "hundred."
b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

Count within 1000; skip-count by 5s, 10s, and 100s.

Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Use place value understanding and properties of operations to add and subtract.
Add up to four two-digit numbers using strategies based on place value and properties of operations.

Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

Explain why addition and subtraction strategies work, using place value and the properties of operations.

Use place value understanding and properties of operations to perform multi-digit arithmetic.
Use place value understanding to round whole numbers to the nearest 10 or 100.

Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Number and Operations—Fractions

Develop understanding of fractions as numbers.
Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by a parts of size 1*/b*.

Understand a fraction as a number on the number line; represent fractions on a number line diagram.

- Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
- Represent a fraction *a/b* on a number line diagram by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.

Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

- Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
- Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
- Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.
- Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Measurement and Data

Measure and estimate lengths in standard units.
Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

Estimate lengths using units of inches, feet, centimeters, and meters.

Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Relate addition and subtraction to length.
Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[18] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[19]

Represent and interpret data.
Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

***Geometric measurement*: understand concepts of area and relate to area of multiplication and addition.**
Recognize area as an attribute of plane figures and understand concepts of area measurement.

a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).

Relate area to the operations of multiplication and addition.

- Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
- Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
- Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
- Recognize area as additive. Find areas of rectilinear figures by decomposing them into non- overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

***Geometric measurement*: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.**
Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Geometry

Reason with shapes and their attributes.
Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[17] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves, thirds, half of, a third of,* etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*

Low Intermediate Basic Education

More than any other, the Low Intermediate Basic Education level provides the foundation for all future mathematical studies. Fluency with multidigit whole and decimal numbers as well as calculations with fractions (and the relationships between them) carry the most weight at this level. This extends to working with the concept of ratio and rates, addition and subtraction of fractions, and understanding why the procedures for multiplying and dividing fractions make sense. While the greatest emphasis is still on standards for numbers and operations, attention to algebra and geometry increases considerably in the Low Intermediate Basic Education level. Reading, writing, and interpreting expressions and equations and generating patterns in numbers and shapes provide a conceptual foundation for functions. In addition, analyzing geometric properties, such as parallelism, perpendicularity, and symmetry, and developing and finding volumes of right rectangular prisms take precedence. The Low Intermediate Basic Education level also emphasizes sampling techniques and data collection through statistical questioning; to previous standards about data, it adds the understanding of measures of center and spread and display of collected data with line plots.

By the end of this level, students will be able to:

Operations and Algebraic Thinking
Use the four operations with whole numbers to solve problems. Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
Gain familiarity with factors and multiples. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
Generate and analyze patterns. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*
Write and interpret numerical expressions. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (2100 + 425) is three times as large as the 2100 + 425, without having to calculate the indicated sum or product.*

Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

Write and evaluate numerical expressions involving whole-number exponents.

Write, read, and evaluate expressions in which letters stand for numbers.

- Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.*
- Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.*
- Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.*

Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*

Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*

Reason about and solve one-variable equations and inequalities.

Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.

Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Represent and analyze quantitative relationships between dependent and independent variables.

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.*

Number and Operations in Base Ten

Generalize place value understanding for multi-digit whole numbers.

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*

Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

Use place value understanding to round multi-digit whole numbers to any place.

Use place value understanding and properties of operations to perform multi-digit arithmetic.
Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Understand the place value system.
Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

Read, write, and compare decimals to thousandths.

- Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).
- Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

Use place value understanding to round decimals to any place.

Perform operations with multi-digit whole numbers and with decimals to hundredths.
Fluently multiply multi-digit whole numbers using the standard algorithm.

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Applications involving financial literacy should be used.

Number and Operations—Fractions

Extend understanding of fraction equivalence and ordering.
Explain why *a* fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.
Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.

- Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*

- Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
- Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

- Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).
- Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)
- Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

Understand decimal notation for fractions, and compare decimal fractions.

Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*

Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

Use equivalent fractions as strategy to add and subtract fractions.

Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*

Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

Apply and extend previous understanding of multiplication and division to multiply and divide fractions.

Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

Interpret multiplication as scaling (resizing), by:

a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

- Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.
- Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.
- Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

The Number System

Compute fluently with multi-digit numbers and find common factors and multiples.
Fluently divide multi-digit numbers using the standard algorithm.

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4 (9 + 2).*

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*

Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

***Geometric measurement*: understand concepts of angle and measure angles.**
Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.

b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.

Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Convert like measurement units within a given measurement system.
Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Represent and interpret data.
Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this level to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.* Plots of numbers other than measurements also should be encouraged.

***Geometric measurement*: understand concepts of volume and relate volume to multiplication and to addition.**

Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.

Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole- number products as volumes, e.g., to represent the associative property of multiplication.
- Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
- Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Geometry

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Graph points on the coordinate plane to solve real-world and mathematical problems.
Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).

Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Classify two-dimensional figures into categories based on their properties.
Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*

Solve real-world and mathematical problems involving area, surface area, and volume.
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Ratios and Proportional Relationships

Understand ratio concepts and use ratio reasoning to solve problems.
Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*

Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*[*]

Statistics and Probability

Develop understanding of statistical variability.
Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*

Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Summarize and describe distributions.
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

[*] Expectations for unit rates at this level are limited to non-complex fractions.

High Intermediate Basic Education

Like preceding levels, the High Intermediate Basic Education level also emphasizes number sense and operations, but here the attention is on fluency with all four operations with rational numbers—both negative and positive. The foundation for understanding of irrational numbers is built here, including calculation with square and cube roots and solving simple quadratic equations. Another keen area of concentration is algebra and functions: formulating and reasoning about expressions, equations, and inequalities; solving linear equations and systems of linear equations; grasping the concept of a function; and using functions to describe quantitative relationships. the High Intermediate Basic Education level is also where understanding and applying ratios, rates, and proportional reasoning—forming a bridge between rational number operations and algebraic relationships—are developed.

Building on the geometric analysis in the Low Intermediate Basic Education level, the focus turns to analyzing two- and three- dimensional figures using distance, angle, similarity, and congruence, and understanding basic right triangle trigonometry. Having worked with measurement data in previous levels, students at this level develop notions of statistical variability and learn to understand summary statistics and distributions. The concept of probability is introduced and developed at this level.

By the end of this level, students will be able to:

The Number System

Apply and extend previous understandings of numbers to the system of rational numbers.
Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous levels to represent points on the line and in the plane with negative number coordinates.

- Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.
- Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
- Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Understand ordering and absolute value of rational numbers.

- Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.
- Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3º C > –7º C to express the fact that –3º C is warmer than –7º C.*
- Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.*
- Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

- Describe situations in which opposite quantities combine to make 0. For example, if a check is written for the same amount as a deposit, made to the same checking account, the result is a zero increase or decrease in the account balance.
- Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
- Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
- Apply properties of operations as strategies to add and subtract rational numbers.

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

- Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
- Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $–(p/q) = (–p)/q = p/(–q)$. Interpret quotients of rational numbers by describing real-world contexts.
- Apply properties of operations as strategies to multiply and divide rational numbers.
- Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

Solve real-world and mathematical problems involving the four operations with rational numbers.

Know that there are numbers that are not rational, and approximate them by rational numbers.

Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of* $\sqrt{2}$, *show that* $\sqrt{2}$ *is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations*.

Understand ratio concepts and use ratio reasoning to solve problems.

Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

- Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
- Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
- Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
- Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Analyze proportional relationships and use them to solve real-world and mathematical problems.

- Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*

Recognize and represent proportional relationships between quantities.

- Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
- Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.
- Explain what a point *(x, y)* on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r)* where *r* is the unit rate.

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Expressions and Equations

Use properties of operations to generate equivalent expressions.
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

- Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*
- Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Work with radicals and integer exponents.
Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, $3^2 \times 3^{(-5)} = 3^{(-3)} = (1/3)^3 = 1/27$.*

Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.

Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.*

Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Understand the connections between proportional relationships, lines, and linear equations.
Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

Analyze and solve linear equations and pairs of simultaneous linear equations.
Solve linear equations in one variable.

- Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
- Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Analyze and solve pairs of simultaneous linear equations.

- Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
- Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.*
- Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.

Geometry

Draw, construct, and describe geometrical figures and describe the relationships between them.
Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

Solve real-life and mathematical problems involving angle, measure, area, surface area, and volume.
Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Solve real-world and mathematical problems involving area, volume and surface area of two- and three- dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Understand congruence and similarity using physical models, transparencies, or geometry software.
Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

Understand and apply the Pythagorean Theorem.
Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Statistics and Probability

Summarize and describe distributions.
Summarize numerical data sets in relation to their context, such as by:

a. Reporting the number of observations.
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Use random sampling to draw inferences about a population.
Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Draw informal comparative inferences about two populations.
Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*

Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in one chapter of a science book are generally longer or shorter than the words in another chapter of a lower level science book.*

Investigate chance processes and develop, use, and evaluate probability models.
Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*

Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

- Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*
- Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?

Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.

Investigate patterns of association in bivariate data.
Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*

Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they like to cook and whether they participate actively in a sport. Is there evidence that those who like to cook also tend to play sports?*

Functions

Define, evaluate, and compare functions.
Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.[22]

Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*

Use functions to model relationships between quantities.
Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Adult Secondary Education

Themes introduced and developed in earlier levels continue and deepen in the Adult Education Secondary Education level. Having already extended arithmetic calculations from whole numbers to fractions and from fractions to rational and irrational numbers, understanding the real number system comes to the fore.

Understanding radical expressions, using and interpreting units in problem solving, and attending to precision are important areas of focus. Prior work with proportional relationships and functions expands from linear expressions, equations, and functions to quadratic, rational, exponential, and polynomial. To bridge the gap between algebra and geometry, rates and relationships are applied to density models. Work also advances in geometry, including using congruence and similarity criteria to prove relationships in geometric figures and determining volumes of cylinders, pyramids, cones, and spheres. Basic skills and knowledge of statistics and probability are applied in a modeling context, in which students interpret and compare data distributions and understand issues of correlation and causation.

Note: Making mathematical models is a Standard for Mathematical Practice (MP.4), and specific modeling standards appear throughout the Adult Secondary Education standards indicated by an asterisk (*).

By the end of this level, students will be able to:

Number and Quantity: The Real Number System
Extend the properties of exponents to rational exponents. Rewrite expressions involving radicals and rational exponents using the properties of exponents.
Number and Quantity: Quantities
Reason quantitatively and use units to solve problems. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Algebra: Seeing Structure in Expressions
Interpret the structure of expressions. Interpret expressions that represent a quantity in terms of its context. • Interpret parts of an expression, such as terms, factors, and coefficients. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.
Write expressions in equivalent forms to solve problems. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. • Factor a quadratic expression to reveal the zeros of the function it defines.
Algebra: Arithmetic with Polynomials and Rational Expressions
Perform arithmetic operations on polynomials. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. Emphasis should be on operations with polynomials.]

Rewrite rational expressions.
Rewrite simple rational expressions in different forms; write $^{a(x)}/_{b(x)}$ in the form $q(x) + {}^{r(x)}/$ where $a(x)$, $b(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

Algebra: Creating Equations

Create equations that describe numbers or relationships.
Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions*.

Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non- viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

For example, rearrange Ohm's law V = IR to highlight resistance R.

Algebra: Reasoning with Equations and Inequalities

Understand solving equations as a process of reasoning and explain the reasoning.
Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Solve equations and inequalities in one variable.
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

Solve quadratic equations in one variable.

Solve systems of equations.
Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

Represent and solve equations and inequalities graphically.
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

Functions: Interpreting Functions

Understand the concept of a function and use function notation.
Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.

Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

Interpret functions that arise in applications in terms of the context.
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *For example, for a quadratic function modeling a projectile in motion, interpret the intercepts and the vertex of the function in the context of the problem. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*

Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*

Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. See conceptual modeling categories.

Analyze functions using different representations.
Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

Use properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in an exponential function and then classify it as representing exponential growth or decay.*

Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

Functions: Building Functions

Build a function that models a relationship between two quantities.
Write a function that describes a relationship between two quantities.

Functions: Linear, Quadratic, and Exponential Models

Construct and compare linear, quadratic, and exponential models and solve problems.
Distinguish between situations that can be modeled with linear functions and with exponential functions.

- Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
- Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

Interpret expressions for functions in terms of the situation they model.
Interpret the parameters in a linear or exponential function in terms of a context.

Geometry: Congruence

Experiment with transformations in the plane.
Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

Geometry: Similarity, Right Triangles, and Trigonometry

Prove theorems involving similarity.
Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Geometry: Geometric Measurement and Dimension

Explain volume formulas and use them to solve problems.
Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Geometry: Modeling with Geometry

Apply geometric concepts in modeling situations.
Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

Statistics and Probability: Interpreting Categorical and Quantitative Data

Summarize, represent, and interpret data on a single count or measurable variable.
Represent data with plots on the real number line (dot plots, histograms, and box plots).

Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
Summarize, represent, and interpret data on two categorical and quantitative variables. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
Interpret linear models. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. Distinguish between correlation and causation.

What It Looks Like in Practice

In the following scenario, an instructor of Low Intermediate Basic Education class is working with students on their math practices and helping them become more confident in the math skills they need in the classroom and at work

Implementing the Standards for Mathematics in a Low Intermediate Basic Education Classroom

Jane is teaching high school equivalency math preparation to students in a Low Intermediate Basic Education classroom. The students have low confidence and are missing some significant areas of foundational math. To give students practice with Math Practice 1 (MP. 1), "Making sense of problems and persevere in solving them," Jane keeps the content low stakes so that students can build their confidence. To support them in building their understanding of Operations and Algebraic Thinking, she developed a lesson to help them gain familiarity with factors and multiples. In this lesson, the instruction is scaffolded, with the instructor teaching the content, having students contribute answers to demonstrate understanding, reteach as necessary, giving students practice time, checking answers, again reteaching as necessary. The high level of support and demonstration of working through problems together as a class and allowing questions throughout the process helps them persevere as they feel a building of success.

Throughout the lesson Jane asks students to describe their process for identifying factors and multiples. This is specific to MP.6, "Attend to precision," in using precise vocabulary so they are stating what needs to be stated, clearly, so others can understand it.

In her teaching, Jane gives students options about which tools to use to solve a problem. She teaches them explicitly how to use a calculator to determine multiples and factors, but she also helps them practice using marker boards and markers and paper and pencil. Sharing pros and cons of using different methods is an ongoing way of helping students practice MP.5, "Use appropriate tools strategically".

The Alaska Adult Education Standards for Digital Literacy[11]

Introduction to Digital Literacy Standards

The Alaska Adult Education Content Standards for Digital Literacy represent a significant shift in the understanding of what digital literacy is and what it means for adult learners. Digital literacy refers to much more than simply being able to complete discrete computer skills; rather, digital literacy requires that one be able to recognize when to use the skills and how to apply them in a way that fits the context. While digital literacy skills do include basic computer skills, they also encompass a larger set of skills: network literacy, digital problem solving, information literacy, and media literacy.

As Vanek (2019) notes, "digital literacy can support or accelerate the acquisition of knowledge and the development of proficiency in a range of academic contexts". This means that teachers are able to better support students in meeting their academic and career goals by helping their students develop and master foundational computer skills and providing opportunities to practice applying in their learning. These standards reinforce the importance of that work by emphasizing the ways that technology can be used to support and enhance learning and teaching in the adult education classroom. The standards also set a high bar that demands that students develop the skills that they need to successfully interact in a technology-rich world.

In reading the standards, it is important to keep in mind:

- The standards identify the knowledge and skills students are all ***working toward mastering***. In other words, students within that level are not expected to have that knowledge or skill yet; rather students are working towards those, which may involve building some very foundational skills.
- The performance indicators serve as examples of some ways that students are able to demonstrate their mastery. They are not the only ways that this can be done. Teachers should identify ways for students to demonstrate learning based on their specific context, including students' goals and needs and the program's policies.

To support instruction to help students gain those foundational skills for completing tasks on a computer, it can be helpful to reference Northstar's Standards for Essential Computer Skills, for Essential Software Skills, and for Using Technology in Daily Life: .

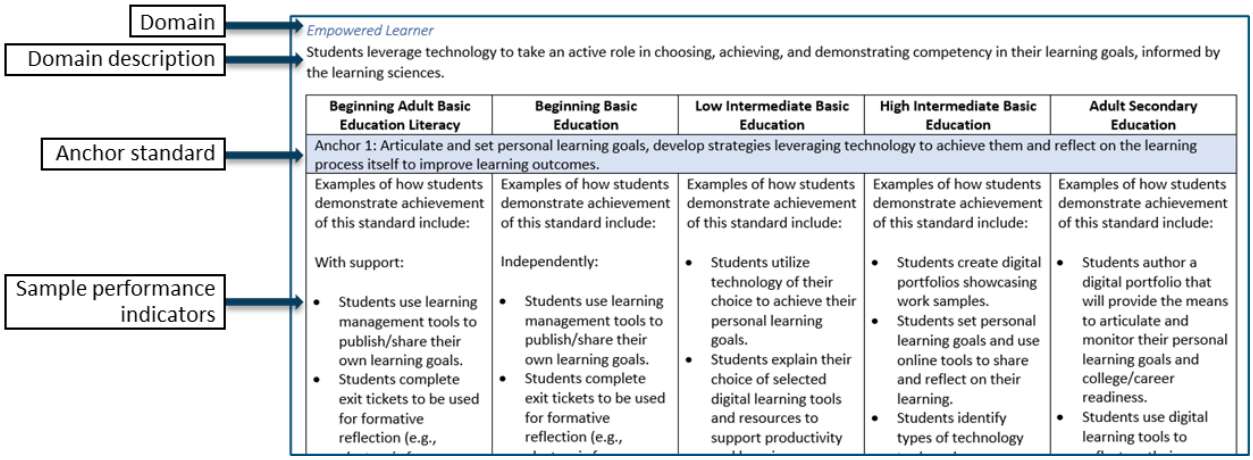
Organization of Digital Literacy Standards

The digital literacy standards are organized into seven distinct domains. Each domain has four anchor standards toward which all students are working. We have included sample performance indicators to help educators better understand what students may be able to do at each level to demonstrate their learning. These are not intended to be interpreted as mandates of how the standards are to be taught. Implementation decisions should be based on student characteristics and adult education program policies.

The domains, domain descriptions, and standards come from the International Society for Technology in Education (ISTE)'s Standards for Students. The sample performance indicators were adapted from the

[11] Adapted from the International Society for Technology in Education (ISTE)'s Standards for Students and the North Carolina Digital Learning Standards for Students Grade Band Indicators.

North Carolina Digital Learning Standards Grade Band Indicators, with the lowest level of the North Carolina Digital Learning Standards Grade Band Indicators used as examples for both Beginning Adult Basic Education Literacy and Beginning Basic Education; for the former, students demonstrate learning with support, and for the former, they demonstrate learning independently.



Digital Literacy Standards

Empowered Learner

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

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use learning management tools to publish/share their own learning goals. • Students complete exit tickets to be used for formative reflection (e.g., electronic forms, digital feedback tools). • Students collect work samples within a digitized portfolio such as writing, fluency or mathematical computation, and conference with their teacher to set a goal for improvement.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use learning management tools to publish/share their own learning goals. • Students complete exit tickets to be used for formative reflection (e.g., electronic forms, digital feedback tools). • Students collect work samples within a digitized portfolio such as writing, fluency or mathematical computation, and conference with their teacher to set a goal for improvement.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students utilize technology of their choice to achieve their personal learning goals. • Students explain their choice of selected digital learning tools and resources to support productivity and learning. • Students monitor their reading fluency using a technology-assisted program (e.g., fluency tutor) or audio recordings and set goals for improvement.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create digital portfolios showcasing work samples. • Students set personal learning goals and use online tools to share and reflect on their learning. • Students identify types of technology tools and resources best able to assist them in their learning and justify the rationale for their selection.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students author a digital portfolio that will provide the means to articulate and monitor their personal learning goals and college/career readiness. • Students use digital learning tools to reflect on their learning by identifying successes, improvements and future needs. • Students use digital learning tools to create study guides, interactive notebooks, flashcards, etc. to help them meet personal learning goals.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Build networks and customize their learning environments in ways that support the learning process.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use collaborative digital tools to communicate in a secure environment. • Students participate in connections with current events both in and outside the student's community (e.g., videoconference, email, virtual field trips to museums dedicated to Alaska wildlife or heritage, Amazon, Zoom, Venmo, Google Meet, Notes app in phone, password security, logging out, clearing history). • Students use digital tools to make content more accessible (e.g., highlighting, using text-to-speech, translators, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use collaborative digital tools to communicate in a secure environment. • Students participate in connections with current events both in and outside the student's community (e.g., videoconference, email, virtual field trips to museums dedicated to Alaska wildlife or heritage, Amazon, Zoom, Venmo, Google Meet, Notes app in phone, password security, logging out, clearing history). • Students use digital tools to make content more accessible (e.g., highlighting, using text-to-speech, translators, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use collaborative digital tools to create and work within their learning network and can access those communities both in and outside the school environment. • Students develop a list of classmates with specific skills to assist them in their learning. • Students use digital tools (e.g., videoconference, email, virtual field trips to museums dedicated to Alaska wildlife or heritage, Amazon, Zoom, Venmo, Google Meet, Notes app in phone, password security, logging out, clearing history) to participate in events both in and outside the school environment.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students participate in school-approved online groups to support learning. • Students demonstrate awareness that online groups and discussion boards may have biases which should be considered. • Students utilize various digital tools to meet their own personal learning needs such as text-to-speech, read aloud, bookmarking, highlighting, note taking, glossaries, etc.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students take notes in a collaborative document during class to be used by all to share questions, further explanation, comments, and construct meaning. • Students collaborate on an online/real-time team project to create one end-product (e.g., a video presentation showcasing something from their village). Groups are required first to define and articulate the steps of their process, including the strengths and responsibilities of each member, and how each step is intended to enrich the quality of the end-product.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
				• Students build a Personal Learning Network (PLN) for a specific curricular area or topic, using a variety of social media feeds, news sites, experts, etc. to support critical thinking skills. Students may use PLN to establish industry connections that facilitate real world relevance of curriculum area or topic.
Anchor 3: Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use digital tools (including their mouse and keyboard) to collect comments and feedback from their teacher and/or peers via email and/or by uploading and downloading documents. • Students review comments and feedback via learning management systems and other digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to collect comments and feedback from their teacher and/or peers. • Students review comments and feedback via learning management systems and other digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use various digital tools to share their learning with stakeholders like parents, teachers, and peers. • Students evaluate the various features of digital learning tools and select tools based on the characteristics of a specific audience.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students participate in school-approved online groups to support learning. • Students solicit comments and feedback via learning management systems and file sharing platforms. Other digital tools may include blogging or collaborative documents/ applications.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use technology to connect to and learn from experts about the topic they are studying. • Students share a collaborative online tool to receive written or video (recorded or live) feedback from classmates, school audience or an audience or expert outside of the school district.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
• Students work collaboratively with another level to produce and publish an e-book within the school's domain, with feedback provided to improve the final product.	• Students work collaboratively with another level to produce and publish an e-book within the school's domain, with feedback provided to improve the final product.	• Students create a digital piece of writing or presentation and use collaborative digital tools to solicit teacher and peer feedback to help make edits, as appropriate (e.g., spell and grammar check, uploading and downloading files, sending files via email).	• Students use interactive digital tools to create online polls or surveys to gather data to help guide and assess information during the learning process.	• Students use online forms to develop survey questions, gather feedback, and identify areas to improve presentations.
Anchor 4: 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.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students explore various technologies during learning such as digital portfolio applications, productivity tools, communication platforms, etc.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students explore various technologies during learning such as digital portfolio applications, productivity tools, communication platforms, etc.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students explore various technologies and select appropriate ones to help them accomplish learning tasks.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students collaborate within an online platform on real-time/online projects, using digital productivity tools such as word processing, data analysis, authoring/production, calendaring, electronic mail and other creative/authoring/storytelling applications.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create help documents, screencasts, and other digital artifacts to demonstrate how they solved a problem so others may benefit by reading or viewing.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
• Students develop foundational skills for locating and using information with digital tools and resources, including age-appropriate databases, video clips, or e-books. • Students apply their knowledge and experiences with technology when using new digital tools or devices.	• Students develop foundational skills for locating and using information with digital tools and resources, including age-appropriate databases, video clips, or e-books. • Students apply their knowledge and experiences with technology when using new digital tools or devices.	• Students continue developing skills to confidently locate and use information with digital tools and resources such as databases, video clips, and e-books. • Students collect and evaluate data, and create graphical displays using an appropriate technology tool of their choice.	• Students develop criteria for selecting digital learning tools and resources to accomplish a defined task. • Students demonstrate their knowledge by locating and using information with digital tools and resources.	• Students analyze and evaluate the ease of use and effectiveness of the available features of selected digital learning tools and resources. • Students report on the capacities and limitations of various technologies as a content exploration, recommending different technologies to peers for specific purposes.

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.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students identify both positive and negative impacts technology may have on them.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students identify both positive and negative impacts technology may have on them.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students explain how their activities and communications online create their digital footprint.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students demonstrate knowledge about media literacy and online safety.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students analyze how social media impacts society, individuals and organizations.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
• Students explain how information shared online leaves a digital footprint or data trail. • Students reflect on and identify what kind of information they want to have in their digital footprint.	• Students explain how information shared online leaves a digital footprint or data trail. • Students reflect on and identify what kind of information they want to have in their digital footprint.	• Students demonstrate positive online behaviors such as sharing creative projects and skills online while not sharing personal information. • Students learn how to use technology responsibly to cultivate and manage their identities through online lessons from vetted programs.	• Students identify differences between ethical and unethical online and digital use behavior. • Students explain the permanence and impact, whether positive or negative, of digital footprints.	• Students actively cultivate a positive social media presence designed for future employers or schools to view. • Students perform routine searches of their personal digital footprints to evaluate any discrepancies or inaccuracies.
Anchor 2: Engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students understand the potential implications of interacting with others online. • Students make decisions about what information is appropriate to share online.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students understand the potential implications of interacting with others online. • Students make decisions about what information is appropriate to share online.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students practice internet safety and ethical behavior when interacting with others online. • Students understand cyberbullying and demonstrate steps to keep the online community safe.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students identify the consequences of unethical uses of technology. • Students explain the positive and negative impact the use of technology can have on personal, professional and community relationships.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students apply advanced search strategies and tools to locate licensed and non-licensed online images and other digital media and provide proper citations for documentation.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
• Students explain the difference between information that is likely safe and appropriate to share online and information that should be kept private.	• Students explain the difference between information that is likely safe and appropriate to share online and information that should be kept private.	• Students exercise digital etiquette when communicating and collaborating online (e.g., correct punctuation and grammar, asking permission to share information or photos of others, passwords, banking info, sending money, ordering and adding a credit card).	• Students discourage cyberbullying by demonstrating the prevention steps and by modeling "see something, say something" in their online communities to reinforce norms and a culture of collaboration.	• Students research an incident reported by the news media of unethical use of technology, ideally involving someone of their age, and identify steps that might have been taken to prevent or mitigate the incident. • Students positively interact with the global community within expected norms of behavior.
Anchor 3: Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students recognize that giving credit to others shows respect for their work. • Students locate an author and/or title for a digital resource. • Students evaluate the creator of digital content.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students recognize that giving credit to others shows respect for their work. • Students locate an author and/or title for a digital resource. • Students evaluate the creator of digital content.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students learn about plagiarism and copyright by participating in lessons from vetted programs. • Students create citations giving credit for work and images used within the educational environment. • Students use digital citation tools to cite sources.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students identify the differences between ethical and unethical online and digital use behavior. • Students correctly cite copyrighted works in their digital portfolios and online work. • Students use online applications to create appropriate and valid citations when reusing content or resources.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students practice ethical and appropriate use of all media and comply with copyright law. • Students use digital citation tools to cite electronic and print sources in appropriate format for school and personal work.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
				• Students understand Fair Use and utilize Creative Commons Licensing for personal work to protect created digital products.
Anchor 4: Manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students recognize personal information that should stay private. • Students express why they shouldn't enter their personal information into a website, online game system, etc. • Students evaluate a website for personal use by applying safety and privacy steps.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students recognize personal information that should stay private. • Students express why they shouldn't enter their personal information into a website, online game system, etc. • Students evaluate a website for personal use by applying safety and privacy steps.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students interact in digital environments without sharing personal data. • Students protect personal information by following internet safety guidelines and keeping passwords and data secure. • Students demonstrate an understanding of different levels of security when using personal information and passwords.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students develop secure passwords to protect privacy. • Students can identify online phishing, spam and malicious emails. • Students can evaluate online tools (e.g., extensions, apps, software, etc.) to determine their safety, privacy policy, and appropriate use.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students practice safe and responsible sharing of information, data and opinions online. • Students create an animated presentation on privacy issues and how personal data is archived and publicly available. • Students demonstrate how to actively manage their settings to protect personal information (e.g., purge cookies, reset passwords, clear history).

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.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students complete developmentally appropriate research steps using a research model. • Students use key words or phrases to search for information in a digital resource or online library catalog. • Students utilize appropriate search tools in an appropriate digital resource.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students complete developmentally appropriate research steps using a research model. • Students use key words or phrases to search for information in a digital resource or online library catalog. • Students utilize appropriate search tools in an appropriate digital resource.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students conduct research by using an accepted research model. • Students use basic search tools to find appropriate information in online reference materials. • Students use digital tools to identify questions related to a topic of interest to broaden or narrow the topic as needed.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students conduct research by implementing steps in a research process. • Students make effective keyword choices when searching online and are able to explain what terms they used to find their information. • Students identify sources using a database to research material.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students apply keyword choice search techniques (e.g., basic and advanced searches). • Students compare search browsers and recognize features that allow for filtering of information. • Students demonstrate resilience in the research process by modifying search strategies as needed.
Anchor 2: Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support:	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently:	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently:	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently:	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently:

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
• Students use criteria from accepted frameworks for choosing reliable websites for research. • Students ask questions to help them evaluate whether a digital resource or e-book is a good fit for their learning and/or research needs. • Students distinguish if digital resources are fiction or informational/ nonfiction.	• Students use criteria from accepted frameworks for choosing reliable websites for research. • Students ask questions to help them evaluate whether a digital resource or e-book is a good fit for their learning and/or research needs. • Students distinguish if digital resources are fiction or informational/ nonfiction.	• Students demonstrate the basic steps to follow when choosing a website for educational use. • Students use rubrics and criteria to analyze online resources. • Students use multiple criteria to differentiate between relevant and irrelevant information found with digital learning tools and resources.	• Students use their knowledge of media literacy and multiple criteria to evaluate the validity of information found with digital learning tools and resources. • Students understand that media present value messages and have an inherent bias, and are able to question the source and recognize how information may purposefully be withheld. • Students can cite relevant evidence and resources to support or validate accuracy and perspective.	• Students use a framework for evaluating information found online. • Students compare and contrast information found about the same global issue from different databases and analyze bias and fairness to the topic, using advanced search tools and country codes to find sources originating from different countries. • Students assess how point of view and purpose impact content, message, and style of text, media, digital, and online presentation.
Anchor 3: Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students organize information by using digital tools (e.g., graphic organizers, outlines, digital folders, online bookmarks, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students organize information by using digital tools (e.g., graphic organizers, outlines, digital folders, online bookmarks, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to add audio or visual media to clarify and communicate information.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use an interactive collaboration tool to produce a digital collection of resources to share with others.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently:

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
• Students use digital learning tools to add audio or visual media to clarify information. • Students pair fiction and nonfiction digital resources.	• Students use digital learning tools to add audio or visual media to clarify information. • Students pair fiction and nonfiction digital resources.	• Students use organizers to support learning (e.g., online bookmarking, digital folders, etc.). • Students utilize diverse media formats to organize information on a shared topic.	• Students create multimedia presentations proposing their solution to a current issue with links or references to supporting resources. • Students use online content curation tools to organize research and information, and personalize online news content.	• Students create their own digital text/resource sets to show varying perspectives on an issue to support papers, presentations and other school projects that show their ability to make connections and evaluations of those varying sources. • Students collect information and report on an issue of their choice, creating a digital product that effectively highlights the reasoning behind their choice of media for the collection. • Students use digital tools, resources or products to analyze survey data, report information and display the data in a variety of ways to support conclusions.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students gather information from diverse media formats (e.g., website, video clip, print) and report about current events and issues that affect their local community. • Through inquiry-based learning activities, students offer solutions applicable to their local community. • Students participate in project-based learning activities.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students gather information from diverse media formats (e.g., website, video clip, print) and report about current events and issues that affect their local community. • Through inquiry-based learning activities, students offer solutions applicable to their local community. • Students participate in project-based learning activities.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students collaborate, communicate, and create to solve a real-world problem. • Students use collaborative tools such as blogs, digital portfolios, and web tools that allow for interactive processing. • Students participate in project-based learning lessons.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students research a current issue using online resources. • Students use digital tools to compare their solutions for a current problem to those identified through research. • Students develop digital materials to promote personal or community-related points of view.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students explore a variety of media for current issues and then share their ideas for how to remediate those issues in a variety of formats (e.g., speech, debate, presentation). • Students examine a global issue addressed by various organizations and compare those solutions to their own ideas. • Students use statistics and other forms of data to inform their ideas on solutions to problems that have a global connection.

Innovative Designer

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

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students demonstrate progress by using journaling or blogging. • Students apply a rule-based, predictable pattern to work through the scientific method, engineering design process, etc. • Students record/save questions, draw solutions, etc. using digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students demonstrate progress by using journaling or blogging. • Students apply a rule-based, predictable pattern to work through the scientific method, engineering design process, etc. • Students record/save questions, draw solutions, etc. using digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students explain and plan a design process such as identifying a problem, thinking about ways to solve the problem, etc. • Students implement a design process by developing possible solutions, testing and evaluating solution(s), presenting a possible solution, and redesigning to improve the possible solution. • Students give examples of how requirements for a product can limit the design possibilities for that product.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students investigate and illustrate complex ideas or processes using a digital tool to organize their own thinking. • Students use a digital space to collaborate, innovate, and share ideas. • Students employ digital tools to brainstorm and develop collaborative and collective solutions to a shared problem.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use a design process for generating ideas, testing and iterating potential solutions, and creating tangible products to solve meaningful, real-world problems. • Students implement, document and present the design process as applied to a particular product, process or problem. • Students apply design thinking to identify a problem that they want to solve, design a solution to the problem, test functionality of the solution, and make adjustments as needed.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students demonstrate a step-by-step process by using digital resources such as graphic organizers, outlines, digital folders, and online bookmarks, learning management systems, etc. • Students record their step-by-step process through digital drawing or video. • Students participate in hands-on activities to create a product.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students demonstrate a step-by-step process by using digital resources such as graphic organizers, outlines, digital folders, and online bookmarks, learning management systems, etc. • Students record their step-by-step process through digital drawing or video. • Students participate in hands-on activities to create a product.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students demonstrate a step-by-step process by using digital resources such as graphic organizers, outlines, digital folders, online bookmarks, learning management systems, etc. • Students generate ideas for a variety of projects (e.g., book talks, informational video, narrative story) using digital storyboard tools. • Students participate in hands-on making activities that enable them to revise steps of the design process based upon results/data.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use design tools to illustrate a thought or process. • Students predict and document the estimated time for different phases of a project, monitor their progress and compare the results at the end of the project. • Students apply a design process framework (e.g., Design Thinking) and articulate tools appropriate to each stage with respect to an assigned project.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create a webpage, flyer, etc. to communicate a school wide event, incorporating “user experience design” elements of line, shape, form, value, space, color, texture, graphics and typography, and principles of organization of balance and proportion, that demonstrate design constraints and calculated risks. • Students investigate and choose digital tools as solutions to problems while considering various project parameters and needs. • Students create digital presentations such as spreadsheets and infographics to communicate research, constraints, and calculated risks.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Develop, test and refine prototypes as part of a cyclical design process.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use storyboarding, planning, and revision for creating and presenting information (e.g., stop-motion videos, presentation tools, etc.). • Students use a rule-based predictable pattern to work through the scientific method, engineering design process, etc. and to test out and redesign their solutions to a challenging task. • Students participate in hands-on making activities which engage them in reflection and project improvement.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use storyboarding, planning, and revision for creating and presenting information (e.g., stop-motion videos, presentation tools, etc.). • Students use a rule-based predictable pattern to work through the scientific method, engineering design process, etc. and to test out and redesign their solutions to a challenging task. • Students participate in hands-on making activities which engage them in reflection and project improvement.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students generate ideas using digital mind-mapping tools. • Students generate, develop, and communicate design ideas and decisions using appropriate terms and graphical representations. • Students engage in lessons for design process prototypes from makerspaces, STEM, STEAM, STREAM, CAD, project-based learning, etc.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use criteria developed with guidance to evaluate a new or improved product for its functional, aesthetic and creative elements. • Students design prototypes to address personal and/or community challenges. This can be implemented via making STEM/STEAM/STREAM, CAD, PBL, etc. lessons or through the use of prototyping software. • Students are able to use data and online feedback to evaluate the feasibility and practicality of prototypes and to test and evaluate designs.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students develop criteria to evaluate a new or improved product for its functional, aesthetic and creative elements. • Students develop prototypes to solve a school problem. • Students evaluate a design solution using conceptual, physical, digital, scientific, and mathematical models at various intervals of the design process in order to check for proper design and note areas where improvements are needed (e.g., check the design solutions against criteria and constraints). The evaluation process may include research of users and target groups.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students reflect (written, oral, or digital) at the end of an activity to demonstrate completion and an assessment of the process. • Students complete digital exit tickets (e.g., using digital feedback tools) upon project completion to reflect on and rate their effort and understanding. • Students solicit feedback on their project from a variety of audiences and work to improve their designs based on this new information.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students reflect (written, oral, or digital) at the end of an activity to demonstrate completion and an assessment of the process. • Students complete digital exit tickets (e.g., using digital feedback tools) upon project completion to reflect on and rate their effort and understanding. • Students solicit feedback on their project from a variety of audiences and work to improve their designs based on this new information.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students independently work through complex and open-ended problems and do not require step-by-step instructions in order to convey their findings to others. • Students execute an engineering design challenge, with an end goal in mind, and work through the process collaboratively using digital tools to simulate, record, reiterate or present solutions. • Students reflect (written, oral or digital) on the design process, to assess and complete the cycle.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to develop thinking, and identify and select information to help make decisions. • Students present solutions to an official group, such as their peers, using digital tools to review options and possibly determine best solutions. • Students evaluate a familiar product or process and suggest improvements to its design.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students design and prototype multiple solutions to a civic problem adjusting direction as needed. • Students demonstrate perseverance and receptiveness as problems are addressed that may have multiple, conflicting and null solutions. • Students receive critiques from peers or instructor and manages criticism appropriately.

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.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use digital tools to collect data and evaluate project-based learning activities. • Students use programs and/or devices to apply computational thinking strategies. • Students select from a variety (e.g., print, online, digital) of appropriate resources to solve a problem they've identified.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to collect data and evaluate project-based learning activities. • Students use programs and/or devices to apply computational thinking strategies. • Students select from a variety (e.g., print, online, digital) of appropriate resources to solve a problem they've identified.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to solve real-world problems and analyze data in project-based learning activities. • Students compare data to create a visually appropriate graphical representation of the data (e.g., line graphs, circle graphs, bar graphs, etc.) using digital tools. • Students use visual programs to understand algorithmic thinking and to apply an abstract solution to a problem.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students practice breaking down complex tasks, using digital organization tools, to make a process manageable and easily communicated. • Students create graphical representations of data using digital graphing tools and analyze the data shown. • Students build computational codes to respond to commands.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students determine which graphical representation is best for conveying the results of a set of data. • Students apply rule-based formulas while finding solutions to problems (e.g. If-Then statements). • Students use online graphing calculators to create simulations in relation to mathematical and scientific data.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: 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.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students collect data (e.g., survey responses) and create charts/graphs, either individually or as a class. • Students analyze charts, graphs or tables to find patterns and explore meanings. • Students sort and categorize various items or objects using digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students collect data (e.g., survey responses) and create charts/graphs, either individually or as a class. • Students analyze charts, graphs or tables to find patterns and explore meanings. • Students sort and categorize various items or objects using digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students utilize digital tools to sort data and identify patterns or trends that emerge. • Students select appropriate media such as online productivity tools, surveys, etc. to communicate their data to an audience. • Students employ digital tools to organize and present data as evidence to defend a viewpoint.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use computational thinking (e.g., step-by-step thinking or directions) to solve problems and make decisions. • Students analyze data collected to determine if patterns or trends are present. • Students use digital tools to segregate data and identify patterns they represent in a variety of graphics, tables, and images.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students construct a spreadsheet workbook with multiple worksheets, organize multiple worksheets to reflect the data, and use mathematical or logical functions, charts and data from all worksheets to convey the results. • Students collect and analyze data using online survey tools. • Students download a large set of data and perform filtering and formula-based calculations in a spreadsheet to draw conclusions.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students identify steps of a problem and solutions by using graphic organizers, outlines, etc. • Students break down the steps needed to solve a problem to form a set of instructions. • Students communicate design plans and solutions using a variety of communication options (e.g., drawing and oral or written descriptive language).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students identify steps of a problem and solutions by using graphic organizers, outlines, etc. • Students break down the steps needed to solve a problem to form a set of instructions. • Students communicate design plans and solutions using a variety of communication options (e.g., drawing and oral or written descriptive language).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to record and communicate their reasoning while solving problems. • Students chunk problems into smaller pieces in order to find the most important information and design possible solutions. • Students create and test solutions to a given problem through the use of a coding activity.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital organization tools to break down a problem into a logical flow. • Students create a project plan timeline and role descriptions for an upcoming group project. • Students design a solution, articulate the biggest challenges to implementation, and reflect on their process.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students teach others about a complex scientific issue by developing an instructional video, brochure, notebook or other presentation tool that breaks the issue into smaller factors and systems. • Students use multiple sources of data for a topic and merge the information to create models that convey new information. • Students design and fabricate an input/output (I/O) device with a sensor input and audio output.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students describe and provide examples of how resources such as digital tools and materials help people get a task done. • Students execute basic functions within digital tools, such as copy, paste, cut, formatting, editing, spell check, etc. • Students recognize how technology is used to solve real-world problems, such as technology in farming, fast food, etc.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students describe and provide examples of how resources such as digital tools and materials help people get a task done. • Students execute basic functions within digital tools, such as copy, paste, cut, formatting, editing, spell check, etc. • Students recognize how technology is used to solve real-world problems, such as technology in farming, fast food, etc.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students describe a process as a series of actions and how it is used to produce a result. • Students participate in a coding activity to direct a computer-assisted device to complete simple tasks. • Students use if/then statements to logically explain how a system works.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create algorithms or a list of ordered steps, to solve a problem or communicate an idea. • Students demonstrate an understanding of logical processes and use reasoning (e.g., if/then statements) to infer and compare solutions, and draw conclusions in a variety of content areas. • Students formulate instructions and use coding to direct a computer-assisted device to complete tasks.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create and successfully implement if/then statements that are applicable in various digital tools such as pivot tables and programming. • Students apply techniques of algebra and functions to digitally represent and solve scientific and engineering problems. • Students apply systems thinking to solve a complex problem.

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.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students articulate a rationale for selecting a digital tool to support their learning. • Students select appropriate digital learning tools and resources to produce and publish information. • Students create a digital artifact to effectively communicate their solution to a community issue.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students articulate a rationale for selecting a digital tool to support their learning. • Students select appropriate digital learning tools and resources to produce and publish information. • Students create a digital artifact to effectively communicate their solution to a community issue.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students competently and independently use the functions/features of a chosen digital medium such as productivity tools, video production applications, etc. • Students choose interactive media to enhance projects, displays or presentations. • Students pick from a variety of digital tools to create a digital "storybook" featuring a narrative, expository or other piece of writing.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students communicate via a variety of digital tools such as email, discussion forums, and blog posts. • Students evaluate the appropriateness of their chosen platform or tools before, during, and after completion, and are able to justify their choice in light of their audience. • Students utilize video conferencing tools effectively in two-way and small group communication.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital learning tools and resources to identify communication needs considering goals, audience, content, access to tools or devices, timing of communication (e.g., time zones), etc. • Students utilize full functions of digital communication tools such as email, discussion forums, and blog posts. • Students investigate the functions/features and user experience of digital learning tools and determine appropriate one(s) to use for their chosen project.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Create original works or responsibly repurpose or remix digital resources into new creations.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students create illustrations for stories or poems using digital technologies. • Students design videos, songs, artwork (e.g., using video, music, or various draw or paint applications). • Students develop an animation using digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create illustrations for stories or poems using digital technologies. • Students design videos, songs, artwork (e.g., using video, music, or various draw or paint applications). • Students develop an animation using digital tools.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students demonstrate their learning by creating original artifacts using digital resources such as productivity tools, video production programs, CAD software, etc. • Students use a portion of existing work in a transformative way to create something new. • Students accurately communicate how they adapt the work of others under fair use and/or creative commons.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students utilize digital tools to create multi-media works such as podcasts, songs, videos, animations, infographics, images, etc. either original or modified from an existing work while giving credit to the original source. • Students reflect on their sources of inspiration for original work, even if not quoted directly. • Students work with educators in information and media literacy to understand how to attribute material in a digital product.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital learning tools to create works for a specific audience while giving credit to the original source. • Students research a current topic and select online information that is appropriate and credible to support a point of view, explaining why their audience should lend credence to their sources. • Students are able to use multiple creation programs to design a final product (e.g., composing music for a film, retouching images for a final product, etc.).

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students identify images, words or text, video clips, etc. to communicate their ideas. • Students narrate an illustration, animation, video, or presentation to explain their ideas. • Students use different presentation platforms (e.g., slide presentation, movie, book trailer).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students identify images, words or text, video clips, etc. to communicate their ideas. • Students narrate an illustration, animation, video, or presentation to explain their ideas. • Students use different presentation platforms (e.g., slide presentation, movie, book trailer).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools to create graphic presentations such as infographics, flowcharts, timelines or digital museums. • Students employ multiple modes of communication such as photos, videos, audio, enhanced text, etc. in order to reach their audience. • Students select a digital medium that is new to them, learning how to effectively use the platform to communicate their idea or solution.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students integrate multimedia and visual displays in presentations to clarify information, strengthen claims and evidence, and add interest. • Students analyze and present data tables and charts to their peers, explaining the significance of each element. • Students utilize digital graphic design tools to create infographics, models, timelines, and/or graphs.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use graphic design software to create visual representations of a complex idea in a subject area. • Students utilize digital graphic design tools to create infographics, models, timelines, and/or graphs. • Students use 3D design software to create functional 3D models.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Publish or present content that customizes the message and medium for their intended audiences.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use an appropriate digital medium to communicate their ideas to their teachers and/or peers. • Students select appropriate digital tools to create their products and presentations. • Students identify the audience for sharing their work (e.g., teachers, peers, parents/guardians or family members, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use an appropriate digital medium to communicate their ideas to their teachers and/or peers. • Students select appropriate digital tools to create their products and presentations. • Students identify the audience for sharing their work (e.g., teachers, peers, parents/guardians or family members, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students discuss and identify digital communication needs considering goals, audience, and content. • Students create digital presentations that will effectively convey an intended message while considering their audience and the needs of the audience. • Students develop interactive digital projects to engage a particular audience.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students evaluate the effectiveness of a digital tool to communicate information with multiple audiences. • Students share what is learned about a topic, problem or question with multiple audiences. • Students create multimedia presentations that are relevant to the message and are enhanced by dynamic features.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students analyze a target audience and consider how that audience best receives or interprets information. • Students use open source or licensed audio/video engineering software to create content that is relevant to their message and enhanced by dynamic features. • Students engage local experts in final multimedia presentations, especially in a judging or evaluative context.

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.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 1: 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.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students recognize how people can connect online and identify digital technologies that enable this connection (e.g., video conferencing, online games, virtual field trips). • Students communicate with students in other schools, states, and countries through digital technologies. • Students use digital tools to connect with peers from different cultures to compare and contrast elements of culture (e.g., histories, folktales, fables, traditional dance, music, and art).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students recognize how people can connect online and identify digital technologies that enable this connection (e.g., video conferencing, online games, virtual field trips). • Students communicate with students in other schools, states, and countries through digital technologies. • Students use digital tools to connect with peers from different cultures to compare and contrast elements of culture (e.g., histories, folktales, fables, traditional dance, music, and art).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students create a plan and select collaboration and/or communication tools to complete a given task. • Students utilize digital tools to connect with learners and experts in various communities to better understand the positive and negative impacts of technology. • Students use digital tools to connect and collaborate with people from other cultures and backgrounds outside of the school community.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students utilize online databases to search for information on cultures other than their own, and consider the biases of each source. • Students contribute to a collaborative digital project including various forms of media to share perspectives. • Students use a digital tool to connect with learners outside of their own school community.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students contribute to an online project that combines photos and personal stories in order to share perspectives and understanding. • Students use a social media platform to connect with students and classrooms around the world to collaborate in innovative ways. • Students work collaboratively with others to create and participate in virtual field trips.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 2: Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students collaborate using online software so that multiple perspectives can be captured. • Students participate in global collaborative projects utilizing video/voice conferencing. • Students use digital tools to collaborate with community figures such as school leaders, law enforcement officers, firefighters, doctors, etc. to understand community issues.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students collaborate using online software so that multiple perspectives can be captured. • Students participate in global collaborative projects utilizing video/voice conferencing. • Students use digital tools to collaborate with community figures such as school leaders, law enforcement officers, firefighters, doctors, etc. to understand community issues.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students connect with other classes, experts, and community members to discuss things such as geographical and cultural differences, opinions, and points of view. • Students post, compare, and discuss data related to an issue to share with another group, class or community to broaden their awareness of the issue. • Students connect with other classes in different regions around their state to discuss landforms and create a digital state tourism webpage or digital presentation.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students collaborate in an online platform with a variety of peers, experts, and community members. • Students participate in online discussion forums moderated and assessed by their teacher. • Students use a digital meeting space to conduct research by interviewing experts or professionals to formulate multiple solutions to problems.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students partner with students in other countries to collectively create software addressing a common global problem. • Students create community documentaries from the oral histories of community members and compile them in a historical repository. • Students plan, schedule, and lead an online meeting using an open sourced or licensed platform to discuss an issue from multiple perspectives.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 3: Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students work collaboratively to create a slideshow while assuming roles such as writer, recorder, editor, artist, graphics placer, etc. • Students use an age-appropriate digital design tool to collaboratively design a product and create the physical product with resources provided, assuming various roles and responsibilities. • Students work collaboratively, providing and responding to peer feedback in order to advance a team project.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students work collaboratively to create a slideshow while assuming roles such as writer, recorder, editor, artist, graphics placer, etc. • Students use an age-appropriate digital design tool to collaboratively design a product and create the physical product with resources provided, assuming various roles and responsibilities. • Students work collaboratively, providing and responding to peer feedback in order to advance a team project.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital tools and assigned roles to create a digital presentation addressing a project or solving a problem. • Students create a public service announcement on a health issue by taking on different roles in the production (e.g., sound editing, graphic design, script writing, etc.). • Students create a documentary about a historical topic using a range of digital tools and resources (e.g., mock interviews, archived photos, etc.).	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students plan a project using online tools (e.g. assign group roles and establish timelines using an online calendar). • Students work in a collaborative group using digital tools to brainstorm, research, create, and publish an idea while assuming roles in research, writer, editor, graphic designer, and publisher. • Students use a digital project management tool to track team performance on assigned tasks.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use project management tools to organize individual and group tasks and reflect on participation and goal completion. • Student project planning includes culturally responsive explorations, such as reporting on different cultures' uses of technology. • Given a central theme, students work in a collaborative group using digital tools to brainstorm, research, create, and publish an idea while assuming roles in research, writer, editor, graphic designer, and publisher.

Beginning Adult Basic Education Literacy	Beginning Basic Education	Low Intermediate Basic Education	High Intermediate Basic Education	Adult Secondary Education
Anchor 4: Explore local and global issues and use collaborative technologies to work with others to investigate solutions.				
Examples of how students demonstrate achievement of this standard by the end of this level include: With support: • Students use digital technology such as augmented/virtual reality and other immersive platforms to explore local and global issues. • Students brainstorm with peers on a collaborative technology to identify and describe issues in their classroom or community. • Students investigate solutions for a classroom or community issue.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students use digital technology such as augmented/virtual reality and other immersive platforms to explore local and global issues. • Students brainstorm with peers on a collaborative technology to identify and describe issues in their classroom or community. • Students investigate solutions for a classroom or community issue.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students collaboratively produce and publish writing about local and global issues. • Students use age-appropriate technology while collaborating and identifying potential solutions to local and global issues. • Students identify positive and negative impacts their use of personal technology and technology systems (e.g., agriculture, transportation, energy generation, water treatment) may have on their community.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students digitally collect and analyze survey data from their communities. • Students create digital products to demonstrate understanding and analysis of global issues. • Students collaborate digitally to present their learning and solutions.	Examples of how students demonstrate achievement of this standard by the end of this level include: Independently: • Students utilize digital tools to research local and global problems, investigate solutions, and to collaborate on communicating solutions in digital ways. • Students connect with local health organizations to create digital promotional materials. • Students create collaborative presentations or websites that focus on solutions for a particular issue (e.g., a website with information and resources about climate change).

What It Looks Like in Practice

In the following scenario, an instructor of a computer/digital literacy class for students who have limited experience with technology is looking to develop a curriculum that helps students understand how digital can enhance their lives and help them meet their goals.

Implementing the Standards for Digital Literacy in a Classroom for Students New to Technology

John has started teaching a computer/digital literacy class at an adult education program in a small village. Many of the participants, including Fetisa, are part of a culture that has not allowed open technology use until very recently—the past 5 years or so.

Fetisa shared with John at the beginning of the year that she wanted to learn how to use spreadsheets so that she could complete budgets for her family's fishing business as well as learn to do her own taxes. John noticed that she was comfortable with computers and learned quickly but had some skill gaps. He suggested that she work through the essential computer skills before moving on to essential software skills.

John reviewed the Digital Literacy Standards carefully to help him plan his instruction for this new class. The Empowered Learner Standard 1, "Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes" seemed to be an essential place to start with his students. He allowed them to choose which skills they wanted to work on first. The skills-based lessons gave immediate feedback on progress, and John provided students support when they were not able to figure things out on their own. Offering independent learning in a supportive environment was a positive model. When a student was unable to figure something out, John troubleshooted with them and gave a framework for digital problem solving.

John also developed some lessons focused on Technology in Daily Life. Although these lessons were extensive and challenging, John recognized that Fetisa was a leader within her sphere of influence and had her work through lessons relating to the Digital Citizenship standards: social media, information literacy, career searching, telehealth and digital footprint. He also had her assist in teaching other students the things she had learned. This allowed Fetisa to work on Computational Designer Standard 3, "Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving" as she was challenged to break a teaching task into smaller parts, identify the key pieces others needed to learn, and figure out how to teach the topic to others so that they can understand it.