

***The Chancellor of the Ohio Board of Regents  
ABE/ASE Content Standards  
Math, Reading and Writing***

**Prepared by**

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**Adult Basic and Literacy Education**

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# Overview

During 2008-2009 Ohio revised its ABE/ASE content standards. The standards revision was necessary to strengthen the existing math, reading and writing benchmarks, to align with the College Readiness Expectations and to ensure inclusion of the Basic and Advanced Skills Stackable Certificate competencies within ABE's system of standards-based education. The revised standards, to be implemented starting July 1, 2009, will better prepare ABE/ASE students for postsecondary education and employment goals. This document presents the final product of the standards revision process.

The purpose of this document is to introduce and clarify Ohio's revised standards for math, reading and writing. This guide will:

- explain the standards revision process,
- highlight changes from the previous standards (2003) and
- present the revised standards.

## ***What Is the Value of Standards?***

Standards are broad statements of what students should know and be able to do. They define the content and process used to make decisions about planning, teaching and assessing. As ABE programs and practitioners make the transition to the 2009 math, reading and writing standards, it is important to keep in mind that:

- Standards provide a common language for students, teachers, administrators and the community to discuss and understand Adult Basic and Literacy Education.
- Standards that are aligned within the University System of Ohio help to create a seamless educational path for students.
- Standards are crucial to defining learner success in Ohio's Student Experience Model.
- Standards make students aware of what they need to accomplish so they can make progress.
- Standards encourage student participation in learning, enriching the ABE classroom as a student-centered environment.
- Standards focus the students and teachers on National Reporting System (NRS) Educational Functioning Levels (EFLs) and learning gains.
- Standards fit naturally within the planning-teaching-assessing cycle.

## ***Why Were the Standards Revised?***

To ensure continuous improvement and strengthen connections within the University System of Ohio and ABE's system of standards-based education, the math, reading and writing standards were revised to accommodate these goals:

- Reflect both content and process and increase the
  - rigor (pushing content to the end of each level)
  - detail (offering more examples in each benchmark)
  - specificity (attempting, where appropriate, to make each benchmark unique)
- Update the content by building and extending concepts in strands or learning progressions across EFLs
- Reflect feedback for needed improvement to the 2003 standards and benchmarks
- Integrate research and practices from various national and state initiatives
- Further support the alignment of assessments, curriculum and instruction

## ***How Do Standards Relate to Assessment?***

NRS allows states to measure student progress and advancement with approved standardized assessments. To incorporate both performance and standardized assessment in its system, Ohio policies call for standards specifying content that students should know and be able to perform combined with NRS-suitable tests to evaluate learning gains.

## ***How Does Technology Impact the Standards?***

Technology is prevalent in today's world, impacting people in their work and personal lives. Effective standards-based education incorporates technology, increasing engagement and persistence for many students. Technology used to enhance instead of replace a well-designed curriculum can accelerate learning. Teachers should ensure that students learn the content defined by the standards with and without the use of technology.

Technology is not limited to just computer software and calculators. Electronic or digital texts (for example, e-mails, blogs, instant messages, wikis), social networking, social messaging and assistive technology, such as modified keyboards and screen readers, are just a few alternatives that can be used to enrich a student's learning experience.

The revised math, reading and writing standards include technology themes within the benchmarks, as appropriate. Additionally, the introduction to each standard later in this guide suggests technology tools and approaches to enrich the classroom experience.

### ***How Were the Standards Revised?***

Starting with the Basic and Advanced Skills Stackable Certificate competencies as a framework and working in the spirit of the Equipped for the Future content standards and performance framework, the math, reading and writing standards were revised through a process of content creation, verification and finalization.

**Creation.** ABE practitioners and their secondary and postsecondary partners, with content area and teaching expertise, drafted the revised standards through input, evaluation and synthesis.

- **Input**—incorporating standards resources into revised benchmark statements
  - Ohio’s Basic and Advanced Stackable Certificates competencies
  - Existing ABE/ASE standards, components of performance and benchmarks
  - State and national standards
  - Feedback based on teacher experiences with the 2003 standards
- **Evaluation**—reviewing multiple drafts during revision process
- **Synthesis**—revising draft documents based on evaluation of the benchmarks, discussion and consensus

**Verification.** All Ohio ABE practitioners, along with secondary and postsecondary partners, were invited to complete an online survey. Over 130 individuals provided multiple judgments including the match of each benchmark to an Educational Functioning Level and ratings of strands on importance and classroom observability.

**Finalization.** A set of ABE, secondary and postsecondary partners with content area and teaching expertise reviewed the drafted benchmarks and made final suggestions for revision based on the verification survey results.

### ***How Are the Standards Organized?***

To understand the revised math, reading and writing standards it is important to be aware of the structure of the standards and terms used to describe elements of the standards.

**Standards** are broad statements of what students should know and be able to do. For each content area there is only one standard. The standards are:

- Use Math to Solve Problems and Communicate
- Read with Understanding
- Convey Ideas in Writing

**Benchmarks** describe expected performance at the exit points for each NRS EFL.

- Each benchmark has a unique identifier.
  - The letter indicates the standard (math = M, reading = R, writing = W).
  - The first number indicates the NRS level.
  - The second number indicates the benchmark number.

An example is shown below.

By the end of Level 3, every Ohio ABE/ASE student will be able to:

**Number Sense**

M.3.1 Connect and count numbers from 0-1,000,000, including common fractions (1/2, 1/4, 3/4) and decimals (.25, .33, .50), to the quantities they represent.

M.3.2 Solve, with a high degree of accuracy, problems using four basic math operations (addition, subtraction, multiplication, division) using

- whole numbers,
- fractions and
- decimals.

M.3.3 Compare and order sets of whole numbers, fractions and decimals.

M.3.4 Estimate (when appropriate) and compute solutions to problems involving whole numbers, fractions and decimals.

M.3.5 Evaluate simple expressions using whole numbers, squares and cubes.

## ***Benchmark Details***

- Benchmarks are organized around topic areas that more discretely define parts of the standard. In *Read with Understanding*, for example, benchmarks are subgrouped under *purpose*, *word knowledge* and *comprehension*.
- Content within topic areas is organized into strands (where appropriate) that span the levels. In *Use Math to Solve Problems and Communicate*, for example, *math operations* represents a strand—there is a benchmark around this concept at each level.
- Benchmarks incrementally increase in difficulty and complexity across the Educational Functioning Levels, even if the wording of the benchmark remains the same.
- At each level the benchmarks assume that the student knows and can demonstrate benchmarks presented in previous levels.
- The benchmarks represent the essential (not exhaustive) concepts that students should know and be able to perform independently.
- Benchmarks are written as exit-level statements, meaning that students should be able to demonstrate their mastery of the benchmarks by the end of the level.
- Some benchmarks at the higher levels are simply written but represent complex applications of concepts.
- Many benchmarks include example lists. These are not the only instances or possible examples of the concepts. A student may master a benchmark without demonstrating the specific examples listed. Likewise, teachers and students may determine a number of additional examples of the benchmark.
- Each example list expands on the lists represented earlier in the strand. The earlier examples may or may not be included in subsequent lists, but these previous examples still apply.

## ***Use Math to Solve Problems and Communicate***

*The following section of this guide presents: an introduction to the content, the math standard and benchmarks and a math terms and symbols guide. The description of math in the introduction is based on the revised benchmarks and the Equipped for the Future Components of Performance.*

When students use math, they understand, interpret and work with pictures, numbers and symbolic information. They apply knowledge of mathematical concepts and procedures to figure out how to answer a question, solve a problem, make a prediction or carry out a task. In doing so, students define and select data to be used in solving the problem and they determine the degree of precision required by the situation. Students solve the problem using appropriate quantitative procedures and verify that the results are reasonable. Finally, students communicate their results using a variety of mathematical representations, including graphs, charts, tables and algebraic models.

***Number sense*** is a general understanding of what numbers are, how different numbers relate to each other and what students can do with numbers.

Students use number sense to count, to connect numbers to actual quantities of things, to compare numbers to each other and to put numbers in order by size. Students also use number sense to estimate solutions to problems and to perform basic math operations—addition, subtraction, multiplication and division.

***Geometry and measurement*** are aspects of math that apply to the size, shape and position of objects with actual dimensions.

Students identify a variety of objects—simple and complex; regular and irregular; one-, two- and three-dimensional. They define the features of those objects and the relationships between features. They select and use appropriate theorems and formulas to solve problems involving those objects and their features. Students also identify basic units and systems of measurement. They estimate, convert and take actual measurements across measurement systems.

***Algebra and patterns*** involve applying math operations and computations to abstract symbols instead of numbers.

Students analyze patterns and sequences of numbers to continue them and construct appropriate new patterns and sequences. They use basic math operations to solve simple, linear and quadratic equations with one or two unknowns, and they connect and graph linear and nonlinear equations.

***Data analysis and probability*** include the creation of data sets and data displays, along with calculating the statistical analysis of likelihood.

Students read common data displays, including graphics and tables, and interpret the data in the displays. In addition, students create their own data sets and displays, both simple and complex. Students calculate basic measures of central tendency and variability to express important characteristics of data sets. Specifically, students determine mathematical probabilities to express the likelihood of events.

**Process** involves fundamental tasks performed in math.

Students solve math problems by identifying appropriate math operations to use on specific numbers. Students communicate mathematical ideas by using appropriate math terms and symbols, showing their math logic orally and in writing and reading math material independently. Students reason mathematically, use logic to identify true and false statements, determine if results are reasonable and identify errors. Students connect math concepts with real life by applying concepts to a variety of real-life settings and problems. Finally, students perform simple and complex math operations with independence and fluency in real-life family and work situations.

#### ***Technology Tidbits for Using Math to Solve Problems and Communicate***

*Use of technology when teaching mathematics is not limited to just calculators; other options exist to help reinforce or teach concepts. Many websites offer interactive exercises that visually represent mathematic operations, such as mapping calculations. Spreadsheet software can be used to teach financial literacy concepts to students to make their learning more authentic and relatable to family, community and employment contexts.*

## ***Use Math to Solve Problems and Communicate***

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### ***Beginning ABE Literacy (Level 1)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 1, students will know and be able to:

#### ***Number Sense***

M.1.1 Connect and count number words and numerals from 0-999 to the quantities they represent.

M.1.2 Solve one-, two- and three-digit addition and subtraction problems in horizontal (for example,  $6 + 3 + 9 = 18$ ) and vertical\* notation without regrouping.

$$\begin{array}{r} *6 \\ 3 \\ +9 \\ \hline 18 \end{array}$$

M.1.3 Compare and order sets of whole numbers from 0-999.

M.1.4 Estimate (when appropriate) and compute solutions to problems involving whole numbers from 0-999.

#### ***Geometry and Measurement***

M.1.5 Identify and compare simple two-dimensional figures (square, circle, diamond, rectangle, triangle) and three-dimensional figures (rectangular solid, cube, cylinder, sphere, cone).

M.1.6 Identify and define spatial relationships (vertical, horizontal, adjacent).

M.1.7 Identify basic units of measurement (for example, inches, pounds, temperature, hours/time) and their purpose.

M.1.8 Select the appropriate tool (for example, ruler, scale, thermometer, clock, calendar) and unit to measure a given property.

M.1.9 Match equivalent units of measurement, including length, weight, time, temperature and U.S. currency.

M.1.10 Round to the nearest 100.

#### ***Algebra and Patterns***

M.1.11 Continue simple patterns and sequences of numbers, colors and figures.

M.1.12 Complete simple number sentences (for example,  $5 + \underline{\quad} = 12$ ).

***Data Analysis and Probability***

- M.1.13 Identify key features of simple charts, pictographs or bar graphs (for example, title, column, row, axis, key, legend).
- M.1.14 Display data using concrete objects, pictographs or charts.

***Process: Solve Problems***

- M.1.15 Solve word problems at the appropriate reading level using addition and subtraction.
- M.1.16 Confirm results with a calculator.

***Process: Communicate Mathematical Ideas***

- M.1.17 Define simple mathematical terms (for example, addend, sum, difference, operation, borrowing, carrying, rounding) and symbols (for example, \$ , ¢ , + , - , = , < , > ).

***Process: Reason Mathematically***

- M.1.18 Identify true or false statements and verify with examples.

***Process: Connect Mathematical Concepts***

- M.1.19 List real-life settings in which mathematics is used.

***Process: Mathematical Performance***

- M.1.20 Perform very basic mathematical operations with directed instruction and few errors.

## ***Use Math to Solve Problems and Communicate***

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### ***Beginning Basic Education (Level 2)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 2, students will know and be able to:

#### ***Number Sense***

- M.2.1 Connect and count number words and numerals from 0-1,000,000 to the quantities they represent.
- M.2.2 Solve, with a high degree of accuracy, multi-digit addition and subtraction problems in horizontal and vertical notation with regrouping; perform multiplication (through 12).
- M.2.3 Compare and order sets of whole numbers from 0-1,000,000.
- M.2.4 Estimate (when appropriate) and compute solutions to problems involving whole numbers from 0-1,000,000.

#### ***Geometry and Measurement***

- M.2.5 Identify and classify features (length, width, height, diameter, radius) of two- and three-dimensional figures and angles by degrees.
- M.2.6 Identify and define points, rays, line segments, lines and planes in mathematical and everyday settings.
- M.2.7 Use established formulas to calculate perimeter of a polygon.
- M.2.8 Draw two-dimensional figures.
- M.2.9 Choose appropriate units (cup or quart or gallon, foot or mile) to measure an object's properties.
- M.2.10 Use appropriate tools (for example, yardstick, measuring tape, meter stick) and units to measure given properties of figures.
- M.2.11 Convert and compute measurements, without regrouping.
- M.2.12 Round to the nearest 1,000.

#### ***Algebra and Patterns***

- M.2.13 Identify, extend and construct numerical patterns and sequences.
- M.2.14 Read and solve simple equations (for example,  $a + 5 = 12$ ) with addition and subtraction operations.

#### ***Data Analysis and Probability***

- M.2.15 Read and interpret pictographs and bar graphs.
- M.2.16 Create and interpret pictographs and bar graphs.
- M.2.17 Classify events as likely or unlikely.

***Process: Solve Problems***

- M.2.18 Solve word problems at the appropriate reading level using addition, subtraction and simple multiplication facts.
- M.2.19 Confirm results with a calculator.

***Process: Communicate Mathematical Ideas***

- M.2.20 Use simple mathematical terms (for example, product, approximate, factor, remainders) and symbols (for example,  $\times$ ,  $\approx$ ) in solving simple word problems.

***Process: Reason Mathematically***

- M.2.21 Determine if a mathematical result is a reasonable response to the problem.

***Process: Connect Mathematical Concepts***

- M.2.22 Identify basic mathematical concepts used in real-life settings.

***Process: Mathematical Performance***

- M.2.23 Perform basic mathematical operations, excluding division, with directed instruction and few errors.

## ***Use Math to Solve Problems and Communicate***

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### ***Low Intermediate Basic Education (Level 3)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 3, students will know and be able to:

#### ***Number Sense***

- M.3.1 Connect and count number words and numerals from 0-1,000,000, including common fractions ( $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$ ) and decimals (.25, .33, .50), to the quantities they represent.
- M.3.2 Solve, with a high degree of accuracy, problems using four basic math operations (addition, subtraction, multiplication, division) using
  - whole numbers,
  - fractions and
  - decimals.
- M.3.3 Compare and order sets of whole numbers, fractions and decimals.
- M.3.4 Estimate (when appropriate) and compute solutions to problems involving whole numbers, fractions and decimals.
- M.3.5 Evaluate simple expressions using whole numbers, squares and cubes.

#### ***Geometry and Measurement***

- M.3.6 Identify figures (tables, clocks, walls, floors) as simple, complex or irregular; two-dimensional or three-dimensional; and symmetrical, congruent or similar.
- M.3.7 Identify coordinate systems and plot pairs of points (x, y).
- M.3.8 Use established formulas to calculate perimeter and area of polygons.
- M.3.9 Complete partial two-dimensional figures on a coordinate grid system.
- M.3.10 Choose and apply appropriate units, including fractional values, and instruments to measure length (inch, foot or mile), weight (ounce, pound or ton), capacity (cup or gallon), time (second, minute, day or week) and temperature (degrees).
- M.3.11 Make, record and interpret measurements of everyday figures.
- M.3.12 Convert and compute measurements, with regrouping.
- M.3.13 Round to the nearest 1,000,000, to hundredths and to the nearest whole number.

#### ***Algebra and Patterns***

- M.3.14 Identify, extend and construct numerical and geometric patterns and sequences.

- M.3.15 Solve simple equations (for example,  $18 - 3 \times 15 = n$ ) using order of operations (multiplication, division, addition, subtraction), excluding parentheses and exponents.

***Data Analysis and Probability***

- M.3.16 Read and interpret pictographs, bar graphs and line graphs as well as schedules, diagrams and tables.
- M.3.17 Create and interpret pictographs, bar graphs and line graphs as well as schedules, diagrams and tables.
- M.3.18 Calculate mean, median, mode and range for simple data sets.
- M.3.19 Determine simple probabilities.
- M.3.20 Represent likely and unlikely events as fractions and decimals.

***Process: Solve Problems***

- M.3.21 Solve a variety of problems using addition and subtraction, multiplication and division and fractions and decimals.
- M.3.22 Confirm results with a calculator.

***Process: Communicate Mathematical Ideas***

- M.3.23 Use correct mathematical terminology (for example, quotient, numerator, denominator, dividend, decimal, divisor) and symbols (for example,  $\div$ ,  $\leq$ ,  $\geq$ ,  $/$ ,  $\pm$ ,  $\neq$ ,  $\%$  ).
- M.3.24 Show a logical progression of thought, orally and in writing.

***Process: Reason Mathematically***

- M.3.25 Begin to use logical terms appropriately (and, or, but, if ... then).
- M.3.26 Explain the differences between accuracy and precision.

***Process: Connect Mathematical Concepts***

- M.3.27 Apply mathematical concepts in real-life settings.

***Process: Mathematical Performance***

- M.3.28 Perform mathematical operations with increasing independence, using decimals and fractions, with few errors.

## ***Use Math to Solve Problems and Communicate***

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### ***High Intermediate Basic Education (Level 4)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 4, students will know and be able to:

#### ***Number Sense***

- M.4.1 Connect a wide range of number words and numerals, including fractions, decimals and whole numbers, to the quantities they represent.
- M.4.2 Solve, with a high degree of accuracy, multi-digit addition, subtraction, multiplication and division problems in horizontal and vertical notation with regrouping, using
  - whole numbers,
  - fractions,
  - decimals and
  - positive/negative integers.
- M.4.3 Apply order of operations to simplify expressions and perform computations.
- M.4.4 Compare and order equivalent forms of commonly used fractions, decimals and percents.
- M.4.5 Estimate (when appropriate) and compute solutions to problems involving fractions, decimals, ratios, proportions and percents.
- M.4.6 Evaluate simple exponent and radical expressions.

#### ***Geometry and Measurement***

- M.4.7 Identify/apply basic formulas about parallel and perpendicular lines, pairs of angles, congruent figures, similar figures, polygons, spheres, cylinders and cones.
- M.4.8 Connect graphical and algebraic representations of lines.
- M.4.9 Use established formulas to calculate perimeter, circumference, area and volume for basic figures.
- M.4.10 Represent and analyze figures using coordinate geometry.
- M.4.11 Show that geometric measures such as length, perimeter, area and volume depend on the choice of unit and that measurements are only as precise as the units used.
- M.4.12 Apply measurement scales and units to describe geometric figures to solve one-step and two-step problems.
- M.4.13 Convert fluently, within measurement systems (metric, customary, time), from one unit to another in order to solve contextual problems and express the conversions using appropriate unit labels.

- M.4.14 Apply the concept of rounding to specified place value; distinguish between exact and approximate values.

### ***Algebra and Patterns***

- M.4.15 Identify, extend and construct arithmetic/geometric patterns and sequences that are one-step and linear or exponential.
- M.4.16 Evaluate and simplify algebraic expressions and solve equations.
- M.4.17 Connect the various representations of a single linear relationship to
- a table,
  - a verbal description,
  - a graph and
  - an equation.
- M.4.18 Graph linear equations.
- M.4.19 Solve linear equations with one unknown graphically and algebraically.

### ***Data Analysis and Probability***

- M.4.20 Collect, organize and interpret data sets involving a single variable.
- M.4.21 Create and interpret data sets using simple frequency distributions and appropriate graphs.
- M.4.22 Calculate basic measures of central tendency (mean, median, mode) and variability (range).
- M.4.23 Determine, using the fundamental counting principle (multiplication rule), the number of possible outcomes for a situation.
- M.4.24 Determine probabilities in real-world problem situations, recognizing and accounting for events that may occur more than once or when order is important.

### ***Process: Solve Problems***

- M.4.25 Solve multi-step problems.
- M.4.26 Specify and use various problem-solving strategies (picture/graph, table, organized list and working backwards).
- M.4.27 Reflect on and analyze problem solutions (both own and others').
- M.4.28 Confirm results with a calculator.

### ***Process: Communicate Mathematical Ideas***

- M.4.29 Use correct mathematical terminology (for example, exponent) and symbols (for example,  $( )$ ,  $\cdot$ ,  $^n$ ,  $\sqrt{\quad}$ ).
- M.4.30 Show a logical progression of thought, orally and in writing.
- M.4.31 Represent contextual situations using mathematics.

***Process: Reason Mathematically***

M.4.32 Use logical terms appropriately (and, or, but, if ... then).

M.4.33 Explain the differences among accuracy, precision and error.

***Process: Connect Mathematical Concepts***

M.4.34 Apply mathematical ideas across a variety of settings (community, family, work).

***Process: Mathematical Performance***

M.4.35 Perform with increasing independence, range and fluency in demonstrating level-appropriate mathematical skills in contextual situations (community, family, work).

## ***Use Math to Solve Problems and Communicate***

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### ***Low Adult Secondary Education (Level 5)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 5, students will know and be able to:

#### ***Number Sense***

- M.5.1 Solve, with a high degree of accuracy, problems using four basic math operations (addition, subtraction, multiplication, division) using
- whole numbers,
  - fractions,
  - decimals and
  - positive/negative integers.
- M.5.2 Apply order of operations, including parentheses and exponents, to simplify expressions and perform computations with positive and negative integers.
- M.5.3 Compare and order equivalent forms of commonly used fractions, decimals and percents, including scientific notation and positive/negative integers.
- M.5.4 Estimate (when appropriate) and compute solutions to problems involving ratios, percents and proportions, scientific notation and square roots.
- M.5.5 Evaluate simple radical expressions with negative exponents.

#### ***Geometry and Measurement***

- M.5.6 Identify/apply basic theorems about parallel and perpendicular lines, pairs of angles, congruent and similar figures, triangles (including right triangles and the Pythagorean theorem), polygons, circles, spheres, cylinders and cones.
- M.5.7 Connect graphical and algebraic representations of lines and simple curves.
- M.5.8 Use established formulas to calculate perimeter, circumference, area and volume for basic figures.
- M.5.9 Graph and analyze two-dimensional figures in a variety of orientations using coordinate geometry.
- M.5.10 Predict the impact of changes in linear dimensions on length, perimeter, area and volume.
- M.5.11 Use the Pythagorean theorem ( $a^2 + b^2 = c^2$ ) and its equivalent forms.
- M.5.12 Apply measurement scales and units to describe geometric figures in order to solve two-step problems with embedded and irrelevant information.
- M.5.13 Convert fluently, between measurement systems (metric, customary, time), from one unit to another in order to solve contextual problems and express the conversions using appropriate unit labels.
- M.5.14 Begin to apply the concept of rounding to appropriate place value in two-step problems; distinguish between exact and approximate values.

### ***Algebra and Patterns***

- M.5.15 Identify, extend and construct arithmetic/geometric patterns and sequences that are multi-step, linear and exponential.
- M.5.16 Evaluate expressions and solve equations with multiple variables using order of operations (parentheses, exponents, multiplication, division, addition, subtraction).
- M.5.17 Connect a variety of linear relationships to
- a table,
  - a verbal description,
  - a graph and
  - an equation.
- M.5.18 Graph linear and nonlinear functions.
- M.5.19 Solve linear equations with two unknowns algebraically and graphically.

### ***Data Analysis and Probability***

- M.5.20 Collect, organize and interpret data sets involving a single variable.
- M.5.21 Create and interpret appropriate graphical displays given frequency distributions for two variables.
- M.5.22 Calculate measures of central tendency (mean, median, mode) and variability (range, interquartile range).
- M.5.23 Use simple probabilities to predict outcomes.
- M.5.24 Calculate probability of events that are independent (not related) and dependent (related).

### ***Process: Solve Problems***

- M.5.25 Solve difficult problems that require sustained thought or effort.
- M.5.26 Specify and use various problem-solving strategies.
- M.5.27 Reflect on and analyze problem solutions (both own and others').
- M.5.28 Confirm results with a calculator.

### ***Process: Communicate Mathematical Ideas***

- M.5.29 Use correct mathematical terminology and symbols ( [ ] or { } ).
- M.5.30 Show a logical progression of thought, orally and in writing.
- M.5.31 Model and represent contextual situations using mathematics.
- M.5.32 Read mathematical material independently with understanding.

### ***Process: Reason Mathematically***

- M.5.33 Use logical terms appropriately (and, or, but, if ... then).
- M.5.34 Explain the differences among accuracy, precision and error; describe how earlier errors affect later calculations.

***Process: Connect Mathematical Concepts***

M.5.35 Analyze problems using mathematical ideas across a variety of settings (community, work, family).

***Process: Mathematical Performance***

M.5.36 Perform with increasing independence, range and fluency in demonstrating level-appropriate mathematical skills in contextual situations (community, family, work).

## ***Use Math to Solve Problems and Communicate***

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### ***High Adult Secondary Education (Level 6)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 6, students will know and be able to:

#### ***Number Sense***

- M.6.1 Solve, with a high degree of accuracy, problems using four basic math operations (addition, subtraction, multiplication, division) using
- whole numbers,
  - fractions,
  - decimals,
  - positive/negative integers and
  - absolute values.
- M.6.2 Explain the effects of numerical operations on integers, whole numbers and fractions.
- M.6.3 Compare and order equivalent forms of commonly used fractions, decimals, percents, radicals and scientific notation.
- M.6.4 Estimate (when appropriate) and compute solutions to problems involving ratios, percents and proportions, scientific notation, roots and numbers with integer exponents.
- M.6.5 Evaluate a variety of exponent and radical expressions, applying laws of exponents.

#### ***Geometry and Measurement***

- M.6.6 Identify/apply basic theorems about parallel and perpendicular lines, pairs of angles, congruent and similar figures, triangles (including right triangles and the Pythagorean theorem), polygons, circles, spheres, cylinders, cones and polyhedrons.
- M.6.7 Connect graphical and algebraic representations of lines, simple curves and conic sections.
- M.6.8 Analyze irregular geometric figures to calculate perimeter, area and volume.
- M.6.9 Graph the results of translations, reflections and rotations in the coordinate plane and determine properties that remain fixed.
- M.6.10 Predict the impact of changes in linear dimensions on length, perimeter, area and volume.
- M.6.11 Use right triangle trigonometry to solve contextual problems.
- M.6.12 Apply measurement scales and units to describe geometric figures in order to solve multi-step contextual problems with embedded and irrelevant information.

- M.6.13 Convert fluently, within and between measurement systems (metric, customary, time), from one unit to another in order to solve contextual problems and express the conversions using appropriate unit labels.
- M.6.14 Apply the concept of rounding to appropriate place value in contextual situations; distinguish between exact and approximate values and justify their uses.

### ***Algebra and Patterns***

- M.6.15 Identify, extend and construct arithmetic/geometric patterns and sequences that are multi-step and linear, nonlinear or exponential.
- M.6.16 Evaluate and simplify algebraic expressions and solve equations and inequalities.
- M.6.17 Connect the various representations of linear and nonlinear relationships to
- a table,
  - a verbal description,
  - a graph and
  - an equation.
- M.6.18 Graph linear and nonlinear functions and analyze their characteristics.
- M.6.19 Solve systems of linear equations with two unknowns by graphing, substitution or addition/elimination.
- M.6.20 Solve quadratic equations for real roots by graphing, factoring, completing the square or applying the quadratic formula.

### ***Data Analysis and Probability***

- M.6.21 Collect, organize and interpret data sets with two variables using frequency distributions for simple counts (one-way tables) and cross-tabulations (two-way tables).
- M.6.22 Create and interpret appropriate graphical displays given frequency distributions for two variables and various distribution shapes.
- M.6.23 Calculate measures of central tendency (mean, median, mode) and variability (range, interquartile range, standard deviation, variance).
- M.6.24 Determine, using the fundamental counting principle (multiplication rule), the number of possible outcomes for a situation, including permutations and combinations.
- M.6.25 Use theoretical or experimental probability, including simulations, to determine probabilities in real-world problem situations involving uncertainty, such as mutually exclusive events, complementary events and conditional probability.

### ***Process: Solve Problems***

- M.6.26 Solve difficult and lengthy problems that may require sustained thought or effort.

- M.6.27 Specify and use various problem-solving strategies.
- M.6.28 Reflect on and analyze problem solutions (both own and others’).
- M.6.29 Confirm results with a calculator.

***Process: Communicate Mathematical Ideas***

- M.6.30 Use correct mathematical terminology and symbols.
- M.6.31 Show a logical progression of thought, orally and in writing.
- M.6.32 Model and represent contextual situations using mathematics.
- M.6.33 Read mathematical material independently with understanding.

***Process: Reason Mathematically***

- M.6.34 Use logical terms appropriately (and, or, but, if ... then).
- M.6.35 Explain the differences among accuracy, precision and error; describe how earlier errors affect later calculations.

***Process: Connect Mathematical Concepts***

- M.6.36 Synthesize and evaluate situations in order to solve problems across a variety of settings (community, work, family), using connections among broad domains of mathematics (algebra and geometry, number sense and data analysis).

***Process: Mathematical Performance***

- M.6.37 Perform with increasing independence, range and fluency in demonstrating level-appropriate mathematical skills in contextual situations (community, family, work).

## Math Terms and Symbols Guide

The following table presents examples of terms and symbols common to math at various Educational Functioning Levels. These examples are also embedded within the benchmark statements.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
<b>Number Sense (Symbols)</b>	\$, ¢, +, -, =, <, >	×, ≈	÷, ≤, ≥, /, ±, ≠, %	() , √, <sup>n</sup> , ·	[ ], { }	
<b>Geometry</b>	<p><b>Two-dimensional shapes</b> Square, circle, diamond, rectangle, triangle</p> <p><b>Three-dimensional shapes</b> Rectangular solid, cube, cylinder, sphere, cone, pyramid</p>	<p><b>Given properties/features</b> Length, width, height, diameter, radius</p>	<p><b>Everyday figures</b> Tables, clocks, walls, floors, fields</p>		<p><b>Pythagorean theorem</b> <math>a^2 + b^2 = c^2</math></p>	
<b>Measurement</b>	<p><b>Units</b> Inches, pounds, temperature, time</p> <p><b>Tools</b> Ruler, scale, thermometer, clock, calendar</p>	<p><b>Units</b> Cup, pint, quart, gallon, ounce</p> <p><b>Tools</b> Yardstick, measuring tape, meter stick, protractor, compass</p>	<p><b>Units</b> Half hour, quarter hour, half cup, quarter cup, feet</p>			
<b>Algebra</b>	<p><b>Number sentences</b> <math>5 + \underline{\quad} = 12</math> <math>\underline{\quad} - 5 = 12</math></p> <p><b>Horizontal notation</b> <math>6 + 3 + 9 = 18</math></p> <p><b>Vertical notation</b></p> $\begin{array}{r} 6 \\ 3 \\ +9 \\ \hline 18 \end{array}$	<p><b>Equations</b> <math>a + 5 = 12</math> <math>b - 5 = 12</math></p>	<p><b>Equation</b> <math>18 - 3 \times 15 = n</math></p>			Quadratic equation, function
<b>Data Analysis and Probability</b>	<p><b>Features</b> Title, column, row, axis, key, legend</p>		<p><b>Descriptive Statistics</b> Mean (M), median (Md), mode (Mo), range</p>	<p><b>Probability</b> Fundamental counting principle</p>		<p><b>Combinations</b> <math>C(n, r)</math></p>
<b>Process Terms</b>	Addend Borrowing Carrying Difference Rounding Operation Sum	Product Approximate Factor Remainders	Quotient Decimal Numerator Divisor Denominator Dividend	Exponents		

## ***Read with Understanding***

*The following section of this guide presents: an introduction to the content, the reading standard and benchmarks and a text complexity chart. The description of reading in the introduction is based on the revised benchmarks and the Equipped for the Future Components of Performance.*

When students read, they determine reading purpose and select reading strategies appropriate to the purpose. Students monitor comprehension while they read and adjust reading strategies. They analyze the information they read and reflect on its underlying meaning, and they integrate it with prior knowledge to address the purpose in reading.

**Purpose** is students' reason for reading and the author's reason for writing.

To be effective readers, students must understand their own reasons for reading. Students might read for pleasure, as a pastime or to get information needed to complete a task, answer questions or solve a problem. Likewise, students must understand the author's reason for writing—that is, the purpose of the text—which might be to inform, to persuade or to argue. Students must determine how the purpose of the text relates to the purpose in reading.

**Word knowledge** is students' understanding of the meaning of the words and sentences they read.

Effective readers use the knowledge of parts of words, such as sounds and syllables, to determine the meaning of words. They examine the context of the words they are reading and relationships of words to each other. They use references as necessary to determine the meaning of basic and technical vocabulary and they understand the use of figurative language from exaggeration and slang to paradox and oxymoron. Finally, effective readers can read text accurately and with appropriate expression.

**Comprehension** is students' ability to understand the fundamental meaning of text by analyzing it and applying their own knowledge and experiences to it.

Effective readers use prior knowledge and their own personal experiences to understand text; they formulate and answer questions about the text; and they discuss their understanding with others. They use punctuation, structural, visual, graphical and organizational cues and elements as aids to comprehension. They analyze text to identify facts and opinions, arguments and evidence and main points and details.

### ***Technology Tidbits for Reading with Understanding***

*Technology can greatly aid students who are learning to read or working to become better readers. Items such as screen readers, reading pens and dictation software programs allow students to both hear words and to see words in text form.*

*Internet access can provide students with limitless reading materials, including reference articles, up-to-date news and e-books.*

## ***Read with Understanding***

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### ***Beginning ABE Literacy (Level 1)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 1, students will know and be able to:

#### ***Purpose***

- R.1.1 Identify personal purpose for reading (for example, to read to a child, to read personal correspondence).
- R.1.2 Use background knowledge to select texts to meet personal purposes for reading. (See the text complexity chart.)

#### ***Word Knowledge***

- R.1.3 Identify and apply phonemic awareness and decoding skills (for example, alphabetic knowledge, phonics, sight words) to read words.
- R.1.4 Identify and apply knowledge of word parts (for example, simple word families) to determine word meaning.
- R.1.5 Use context clues (for example, word order) to determine the meaning of words in texts.
- R.1.6 Select and use print and electronic reference materials (for example, picture dictionary) to determine word meaning.
- R.1.7 Use word relationships (for example, synonyms, antonyms) to determine word meaning.
- R.1.8 Understand meaning of basic functional vocabulary (for example, “stop,” “danger”).
- R.1.9 Identify and explain use of figurative language (for example, exaggeration) in text.
- R.1.10 Read own writing and level-appropriate texts (see the text complexity chart) smoothly with appropriate pauses, expression and accuracy (with few errors).

#### ***Comprehension***

- R.1.11 Apply, monitor and adjust comprehension strategies (for example, activate prior knowledge, make predictions, find key information, compare understanding with another reader, reread) to understand text.
- R.1.12 Locate and use basic structural elements (for example, title page, columns), basic punctuation clues and visual/graphic cues (for example, drawings, photographs, bold, italics, underlining, web links) to aid in comprehension of print and electronic texts.
- R.1.13 Identify basic story elements (for example, character, setting, plot).
- R.1.14 Distinguish between fact and fiction in the text.
- R.1.15 Identify the stated main idea and supporting details.
- R.1.16 Construct meaning by making connections between text and own experiences and knowledge.

## ***Read with Understanding***

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### ***Beginning Basic Education (Level 2)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 2, students will know and be able to:

#### ***Purpose***

- R.2.1 Identify general purpose for reading (for example, for pleasure, to get information, to pass time).
- R.2.2 Select text to match purpose, appropriate complexity and reading level. (See the text complexity chart.)

#### ***Word Knowledge***

- R.2.3 Identify and apply decoding skills (for example, phonics, sight words, compound words) to read words.
- R.2.4 Identify and apply knowledge of word parts (for example, complex word families, prefixes, suffixes, contractions) to determine word meaning.
- R.2.5 Use context clues (for example, in-sentence definitions) to determine the meaning of words in texts.
- R.2.6 Select and use print and electronic reference materials (for example, glossary, simplified dictionary) to determine word meaning.
- R.2.7 Use word relationships (for example, homonyms, multiple-meaning words) to determine word meaning.
- R.2.8 Understand meaning of basic content vocabulary and complex, functional vocabulary (for example, “warm,” “clean”).
- R.2.9 Identify and explain use of figurative language (for example, regionalisms, slang) in text.
- R.2.10 Read own writing and level-appropriate texts (see the text complexity chart) smoothly with appropriate pauses, expression and accuracy (with few errors).

#### ***Comprehension***

- R.2.11 Apply, monitor and adjust comprehension strategies (for example, predict and confirm outcomes based on personal experiences, question own understanding, identify and correct misread words) to understand text at a literal level.
- R.2.12 Identify and use structural elements (for example, headings, subheadings, indentations, table of contents), visual/graphic cues (for example, basic maps, charts, graphs), punctuation clues and organizational strategies (for example, chronological order, sequence) to aid in comprehension of print and electronic texts.

- R.2.13 Identify narrative elements (for example, problem/conflict, sequence of events, theme) and basic features of poetry and drama.
- R.2.14 Distinguish between fact and opinion in the text.
- R.2.15 Determine a possible implied main idea and supporting details.
- R.2.16 Construct meaning from text by connecting prior experience and knowledge to new information read.

## ***Read with Understanding***

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### ***Low Intermediate Basic Education (Level 3)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 3, students will know and be able to:

#### ***Purpose***

- R.3.1 Identify specific purpose for reading (for example, to complete a task, to learn about a topic of interest).
- R.3.2 Select text to match purpose, appropriate complexity and reading level. (See the text complexity chart.)

#### ***Word Knowledge***

- R.3.3 Identify and apply decoding skills (for example, six syllable types) to read words.
- R.3.4 Identify and apply knowledge of word parts (for example, roots, affixes) to determine word meaning.
- R.3.5 Use context clues (for example, grammar, sequencing, examples) and punctuation cues (for example, commas, quotes) to determine the meaning of words in texts.
- R.3.6 Select and use print and electronic reference materials (for example, dictionaries, thesauruses) to determine and clarify word meaning.
- R.3.7 Use word relationships (for example, abbreviations, acronyms, homophones) to determine word meaning.
- R.3.8 Understand meaning of common high-interest content vocabulary (for example, “weather”) and general academic vocabulary (for example, “combine,” “technology”).
- R.3.9 Identify and explain use of figurative language (for example, metaphor, simile, idioms) in text.
- R.3.10 Read own writing and level-appropriate texts (see the text complexity chart) smoothly with appropriate pauses, expression and accuracy (with few errors).

#### ***Comprehension***

- R.3.11 Apply, monitor and adjust comprehension strategies (for example, adjust reading rate, read ahead, skim text, summarize, make simple inferences) to understand text.
- R.3.12 Use structural elements (for example, captions, sidebars), visual/graphic cues (for example, maps, charts, graphs), complex punctuation clues and organizational strategies (for example, description, compare and contrast) to aid in comprehension of print and electronic texts.
- R.3.13 Analyze how narrative elements interact to develop a story (for example, character development as a result of events, role of setting in plot development).

- R.3.14 Distinguish relevant from irrelevant information in the text.
- R.3.15 Draw conclusions about text using knowledge of main idea(s) and supporting details, consistent with complexity of the text.
- R.3.16 Construct meaning from text by applying prior knowledge and background reading to new information read.

## ***Read with Understanding***

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### ***High Intermediate Basic Education (Level 4)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 4, students will know and be able to:

#### ***Purpose***

- R.4.1 Identify purposes for reading (for example, to generate and answer questions about a topic, to solve problems).
- R.4.2 Select text to match purpose, appropriate complexity and reading level. (See the text complexity chart.)

#### ***Word Knowledge***

- R.4.3 Apply decoding skills (for example, multi-syllabic words) to read words.
- R.4.4 Apply knowledge of word parts (for example, Greek and Latin roots) to determine word meaning.
- R.4.5 Use context clues (for example, cause and effect and compare and contrast relationships) to determine the meaning of words in texts.
- R.4.6 Select and use print and electronic reference materials (for example, web search) to determine and clarify word meaning.
- R.4.7 Use word relationships (for example, connotation, denotation) to determine word meaning.
- R.4.8 Understand meaning of some specialized content vocabulary (for example, “constitution”).
- R.4.9 Identify and explain the use of figurative language (for example, hyperboles, personification, mixed metaphor) in text.
- R.4.10 Read own writing and level-appropriate texts (see the text complexity chart) smoothly with appropriate pauses, expression and accuracy (with few errors).

#### ***Comprehension***

- R.4.11 Apply, monitor and adjust comprehension strategies (for example, note subtle details in texts, pose questions about text) to understand text at an inferential level.
- R.4.12 Use structural elements and organizational strategies (for example, problem and solution, cause and effect) to aid in comprehension of print and electronic texts.
- R.4.13 Analyze literary elements and characteristics that define genres of writing (for example, prose, poetry, drama).
- R.4.14 Analyze how an author uses argument and provides evidence to persuade others.
- R.4.15 Draw conclusions about text using knowledge of main idea(s) and supporting details, consistent with complexity of the text.
- R.4.16 Construct meaning from text by evaluating relevance of prior knowledge and applying appropriate knowledge to new information read.

## ***Read with Understanding***

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### ***Low Adult Secondary Education (Level 5)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 5, students will know and be able to:

#### ***Purpose***

- R.5.1 Establish purposes for reading (for example, to inform a discussion, to get information for a paper, to debate a topic).
- R.5.2 Select text to match purpose, appropriate complexity and reading level. (See the text complexity chart.)

#### ***Word Knowledge***

- R.5.3 Apply knowledge of decoding skills to read words.
- R.5.4 Apply knowledge of word parts (for example, word origins) to determine word meaning.
- R.5.5 Analyze context clues to determine or clarify the explicit and implicit meaning of words in texts.
- R.5.6 Select and use print and electronic specialized reference materials (for example, references related to a specific topic area) to determine and clarify word meaning.
- R.5.7 Apply knowledge of word relationships to determine word meaning.
- R.5.8 Understand meaning of specialized content vocabulary (for example, “carrying cost,” “broadband”).
- R.5.9 Recognize how the use of figurative language (for example, analogy, cliché, extended metaphor) affects interpretation of text.
- R.5.10 Read own writing and level-appropriate texts (see the text complexity chart) smoothly with appropriate pauses, expression and accuracy (with few errors).

#### ***Comprehension***

- R.5.11 Apply, monitor and adjust comprehension strategies (for example, compare and contrast information) across multiple texts.
- R.5.12 Analyze and use structural elements (for example, footnotes, bibliographies) and organizational strategies to aid in comprehension of print and electronic texts.
- R.5.13 Analyze a variety of literary forms (for example, short story, mystery, fantasy, comedy, tragedy, epic).
- R.5.14 Analyze the use of literary devices (for example, flashback, irony, symbolism, propaganda, stereotyping) to develop arguments or explanations.
- R.5.15 Draw conclusions about text using knowledge of main idea(s) and supporting details, consistent with complexity of the text.
- R.5.16 Develop understanding of concepts by applying appropriate prior knowledge to new information read.

## ***Read with Understanding***

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### ***High Adult Secondary Education (Level 6)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 6, students will know and be able to:

#### ***Purpose***

- R.6.1 Establish and adjust purposes for reading.
- R.6.2 Select text to match purpose, appropriate complexity and reading level. (See the text complexity chart.)

#### ***Word Knowledge***

- R.6.3 Apply knowledge of decoding skills to read words.
- R.6.4 Apply knowledge of word parts to determine subtle differences in word meaning.
- R.6.5 Analyze context clues to determine or clarify the explicit and implicit meaning of words in texts.
- R.6.6 Select and use print and electronic specialized reference materials (for example, references related to a specific topic area) to determine and clarify word meaning.
- R.6.7 Apply knowledge of word relationships to determine subtle differences in word meaning.
- R.6.8 Understand meaning of extensive specialized content vocabulary (for example, “stethoscope,” “architect”).
- R.6.9 Recognize how the use of figurative language (for example, oxymoron, allusions, paradox) affects interpretation of text.
- R.6.10 Read own writing and level-appropriate texts (see the text complexity chart) smoothly with appropriate pauses, expression and accuracy (with few errors).

#### ***Comprehension***

- R.6.11 Apply, monitor and adjust comprehension strategies (for example, evaluate and synthesize) across multiple texts.
- R.6.12 Evaluate how structural elements (for example, appendices) and organizational strategies relate to meaning and graphic/visual appeal of print and electronic texts.
- R.6.13 Analyzes how a work of literature reflects the heritage, traditions, attitudes and beliefs of its author and/or time.
- R.6.14 Evaluate how the author’s personal history, credentials and biases impact the text.
- R.6.15 Draw conclusions about text using knowledge of main idea(s) and supporting details, consistent with complexity of the text.
- R.6.16 Enhance understanding of concepts extending beyond the text by synthesizing prior knowledge and new information read.

## Text Complexity Chart

Texts at appropriate complexity and reading level may be determined by considering the text types and aspects of text listed below. The chart is not part of the reading standards, but it is referenced in the standards.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
<b>Text Types</b>	Shopping lists Names/addresses Product labels Simple advertisements Simple forms Calendars Children's picture books with few words Local place names and signs Language experiences stories	Library card applications Simple charts Simple posters and flyers Greeting cards Sections of bills Weather forecast charts in newspaper or online Some classified advertisements Simplified narratives and plays Narratives written by self or classmates Children's books with simple texts Tall tales Simple poems Labels Maps Schedules	Applications Simple forms Posters and community flyers Television listings Newspaper headlines Simple novels or plays Newspapers written especially for students Simple web pages Simple information books Simple short stories Simple emails or letters Easy voter information Timelines Tables Calendars Charts Graphs	Newspaper sections (e.g., comics, weather) Articles from popular magazines (e.g., <i>Reader's Digest</i> , <i>People</i> , <i>Parenting</i> ) Internet websites Information books Popular novels Poems Plays and screenplays Historical documents Job-related documents	Work manuals Simple wills Tax forms Voter eligibility materials Newspaper articles News magazines (e.g., <i>Time</i> , <i>Newsweek</i> ) Editorials Internet articles and blogs Subject matter textbooks Novels	College and technical school application materials Financial aid information Insurance forms Research articles Consumer guides Work and technical manuals Magazine essays Major literary works
<b>Aspects of Text</b>						
1. Vocabulary (author's word choice)	Familiar; simple descriptive language	Familiar; simple with little context-dependency	Familiar but varied; increased use of challenging words	Familiar; some difficult; some context-dependent; some specialized	Some unfamiliar; some abstract; context-dependent	Highly specific; highly context-dependent; highly specialized
2. Author's purpose (Intent)	Obvious or explicitly stated at the beginning of text or in title	Obvious or explicitly stated early in the text	Explicitly stated or unambiguous with little subtlety	Explicit; some subtlety	Implicit; nuanced; revealed over the entirety of the text	Implicit; sometimes ambiguous
3. Relationships (interactions among ideas or characters)	Basic; direct, one-to-one connections	Simple; predictable	Straightforward; mostly uncomplicated	Straightforward; sometimes inferred	Not entirely straightforward; inferred; more sophisticated	Subtle; integrated/complex
4. Content (amount and sophistication of information)	Small block of simple text; few details	Short; uncomplicated; few details	Short to moderate length; some detail; uncomplicated	Short to moderate length; some detail; some complexity	Moderate length; detailed; complex	Moderate to long length; detailed; complex to dense
5. Structure (organization of text)	Very straightforward; clear and consistent format	Clear format; conventional sequence of events	Conventional; uninvolved	Conventional; somewhat involved	Conventional; involved	Sometimes unconventional (hybrid models); elaborate
6. Style (author's tone and use of language)	Understandable; plain; strongly supports meaning	Understandable; moderately supports meaning	Understandable; supports meaning	Understandable	Understandable but somewhat intricate	Understandable but often intricate

Source. Adapted from the ACT College Readiness guidelines and Achieve and NCIEA text complexity documents.

## ***Convey Ideas in Writing***

*The following section of this guide presents: an introduction to the content, the writing standard and benchmarks and tips for teachers. The description of writing in the introduction is based on the revised benchmarks and the Equipped for the Future Components of Performance.*

In writing, students determine the purpose for communicating. They organize information to serve the purpose, context and audience. In presenting that information, students pay attention to the conventions of English language usage, including grammar, spelling and sentence structure, to minimize barriers to readers' comprehension. They seek feedback and make revisions to enhance the effectiveness of communication. Finally, students make their writing available to readers.

***Prewriting*** is the preparation before drafting or composing starts.

In prewriting, students generate, gather and organize possible ideas and details for the composition. They identify the topic, the purpose (for example, to inform, persuade, entertain) and the audience. They expand the topic with main points and details and organize it all into a logical pattern that communicates their ideas effectively to the audience to achieve the purpose.

***Drafting*** is the production of the draft—the first version of the writing.

In drafting, students focus both on content and on mechanics. They select words to convey their ideas clearly and specifically; they organize those words into sentences and paragraphs that convey their ideas in a logical presentation with a beginning, a middle and an end. Throughout the draft, they use correct spelling, grammar and punctuation and clear sentence structure to convey meaning.

***Editing and revising*** is the refinement of the draft to enhance its effectiveness.

In editing and revising, students review the draft again and seek feedback on it from others. Students reconsider both the content and the mechanics of the draft to determine whether the draft effectively communicates the ideas to the audience and achieves the purpose. They may use checklists or rubrics to evaluate the quality of the work. Students may make mechanical corrections in grammar, spelling and punctuation, and they may also change the substance of the draft with a new opening or closing, deletions, additions, elaboration, a change in viewpoint or structure or a new focus.

***Publishing*** is getting the final draft to the intended reader.

In publishing, students get the work into the hands of a reader. Students might publish their work by giving it to a friend, a family member, a teacher or a larger audience. When a work is published, it goes out to the intended audience for the intended purpose. Publishing is the final step of the writing process and helps to create an authentic learning experience. Publishing reinforces the value of using writing appropriate to the purpose and audience.

### ***Technology Tidbits for Conveying Ideas in Writing***

*Technology, such as word processing software, can greatly improve the rate at which students can develop, manipulate, edit and revise the text. Concept mapping software can be beneficial to students to graphically organize their ideas before drafting the text.*

*Technology enables students to have a greater range of publishing options for the writing. This not only includes how the finished product will appear but also how it will be shared (for example, e-mail, blogs, websites).*

## ***Convey Ideas in Writing***

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### ***Beginning ABE Literacy (Level 1)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 1, students will know and be able to:

#### ***Prewriting***

- W.1.1 Discuss the purpose and intended audience for a writing situation.
- W.1.2 Write for an assigned or self-selected purpose (for example, to state personal information, to tell a story).
- W.1.3 Write for varying types of tasks (for example, simple stories, friendly letters, invitations, journals, captions).
- W.1.4 Generate writing ideas through discussions with others.
- W.1.5 Choose a topic for writing.
- W.1.6 Gather ideas for investigation about a topic using level-appropriate books, observations or discussions.
- W.1.7 Discuss the characteristics of original and borrowed materials.
- W.1.8 Organize ideas using strategies (for example, what I know, what I want to know, what I've learned [KWL], logs).
- W.1.9 Choose an organizational pattern (for example, time order) to present ideas logically.

#### ***Drafting***

- W.1.10 Organize writing to include a beginning, middle and end.
- W.1.11 Group related ideas into sentences.
- W.1.12 Select words that convey a clear idea.
- W.1.13 Write simple sentences.
- W.1.14 Use correct spelling for high-frequency words and words with regular short- and long-vowel patterns in writing.
- W.1.15 Punctuate writing correctly using question marks, exclamation points and periods.
- W.1.16 Capitalize the first word in a sentence, names and the pronoun "I."
- W.1.17 Use basic parts of speech (nouns, verbs, adjectives) in writing.

#### ***Editing and Revising***

- W.1.18 Reread and make corrections to own writing.
- W.1.19 Proofread writing and edit to improve conventions (for example, use of basic parts of speech, spelling of high-frequency words, punctuation of sentences, capitalization of names).

W.1.20 Seek feedback from teachers (for example, through discussions, conferences, written comments).

W.1.21 Use checklists and rubrics to improve writing.

***Publishing***

W.1.22 Use available technology to compose text.

W.1.23 Print legibly and space letters, words and sentences appropriately.

## ***Convey Ideas in Writing***

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### ***Beginning Basic Education (Level 2)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 2, students will know and be able to:

#### ***Prewriting***

- W.2.1 Choose from a selection of topics, audiences and purposes for a writing situation.
- W.2.2 Write for a limited number of assigned or self-selected purposes (for example, to describe an event, to convey a message).
- W.2.3 Write for varying types of tasks (for example, stories, letters, responses, notes).
- W.2.4 Generate writing ideas (for example, from printed materials, from observation).
- W.2.5 Form a main idea from provided details or facts.
- W.2.6 Acquire information about an assigned or self-selected topic (for example, from level-appropriate books, magazines, videotapes, CDs, websites).
- W.2.7 Rewrite information from a single source in own words.
- W.2.8 Organize ideas using strategies (for example, simple webs, lists).
- W.2.9 Choose an organizational pattern (for example, logical sequence) to present ideas logically.

#### ***Drafting***

- W.2.10 Organize writing by providing a simple introduction, a body and a clear sense of closure.
- W.2.11 Group related ideas into a paragraph with a topic sentence and supporting sentences.
- W.2.12 Use suitable word choice to convey a message effectively.
- W.2.13 Write simple sentences (statements, questions, commands).
- W.2.14 Use correct spelling for multi-syllabic words, common root words, base words and affixes in writing.
- W.2.15 Punctuate writing correctly using end marks, commas in a series and apostrophes in contractions and possessives.
- W.2.16 Capitalize proper nouns, titles, places and abbreviations.
- W.2.17 Incorporate parts of speech (pronouns, conjunctions) and grammatical structures (for example, verb tenses, subject-verb agreement, noun-pronoun agreement) in writing.

#### ***Editing and Revising***

- W.2.18 Reread and revise writing to clarify meaning and to focus topic (for example, adding and deleting words, adding descriptive words, rearranging words and sentences).
- W.2.19 Proofread writing and edit to improve conventions (for example, subject-verb agreement, spelling of compounds, commas in a series, contractions).

W.2.20 Seek feedback from peers and teachers (for example, through discussions, conferences, written comments).

W.2.21 Use checklists and rubrics to judge the quality of the work and improve writing.

***Publishing***

W.2.22 Use available technology to compose text.

W.2.23 Rewrite as needed and present writing for display or sharing with others.

## ***Convey Ideas in Writing***

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### ***Low Intermediate Basic Education (Level 3)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 3, students will know and be able to:

#### ***Prewriting***

- W.3.1 Identify a topic, purpose and intended audience for a writing situation.
- W.3.2 Write for a growing number of purposes (for example, to argue a point, to inform).
- W.3.3 Write for varying types of tasks (for example, narratives, informational reports, formal letters, personal or creative writing).
- W.3.4 Generate writing ideas (for example, lists, discussions, free writing, background reading, other sources).
- W.3.5 State and develop a clear main or controlling idea.
- W.3.6 Employ research skills to select level-appropriate sources to support central ideas, concepts and themes.
- W.3.7 Paraphrase from a variety of texts and incorporate into own writing.
- W.3.8 Organize ideas using strategies (for example, notes, Venn diagrams).
- W.3.9 Choose an organizational pattern (for example, classification, compare and contrast, climactic order) to present ideas logically.

#### ***Drafting***

- W.3.10 Organize writing by providing a simple introduction, a body and a clear sense of closure that summarizes important ideas and details.
- W.3.11 Group related ideas into a paragraph with a topic sentence and specific, relevant details and examples.
- W.3.12 Use a variety of descriptive words and literal and figurative language to convey a message.
- W.3.13 Write simple and compound sentences.
- W.3.14 Use correct spelling for contractions, compounds, homonyms and irregular patterns in writing.
- W.3.15 Punctuate writing correctly using commas, end marks, apostrophes, parentheses and quotation marks.
- W.3.16 Use correct capitalization based on the writing situation.
- W.3.17 Incorporate parts of speech (adverbs, prepositions, interjections) and grammatical structures (for example, pronoun usage) in writing.

### ***Editing and Revising***

- W.3.18 Reread and revise writing to clarify meaning and to ensure logical order (for example, word choice, adding transitional words and phrases and rearranging paragraphs).
- W.3.19 Proofread writing and edit to improve conventions (for example, pronouns, commas).
- W.3.20 Seek feedback from peers and teachers (for example, through discussions, conferences, written comments).
- W.3.21 Use checklists and rubrics to judge the quality of work and improve writing.

### ***Publishing***

- W.3.22 Use available technology to compose text.
- W.3.23 Add visuals as needed to support the presentation of writing.

## ***Convey Ideas in Writing***

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### ***High Intermediate Basic Education (Level 4)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 4, students will know and be able to:

#### ***Prewriting***

- W.4.1 Determine a topic, purpose and audience for a writing situation.
- W.4.2 Write for varying purposes (for example, to persuade, to explain, to entertain).
- W.4.3 Write for varying types of tasks (for example, business letters, letters to the editor, job applications, literature responses, informational essays, informal writing).
- W.4.4 Generate writing ideas through a variety of strategies (for example, surveys, interviews, background reading).
- W.4.5 Formulate a thesis from a main or controlling idea.
- W.4.6 Determine the relevance, accuracy and credibility of level-appropriate sources to support a controlling idea.
- W.4.7 Avoid plagiarism by summarizing findings from sources, and distinguish between own original material and borrowed material.
- W.4.8 Develop a list of sources referenced.
- W.4.9 Select and use organizational methods (for example, outlines, charts, tables, story maps, plot pyramids).
- W.4.10 Choose an organizational pattern (for example, order of importance, problem to solution, topical) to present ideas logically.

#### ***Drafting***

- W.4.11 Develop writing with an effective introduction, a body and a conclusion that summarizes, extends or elaborates on points or ideas in the writing.
- W.4.12 Group related ideas into well-developed paragraphs with topic sentences and supporting sentences.
- W.4.13 Use precise language, active voice and descriptive detail to effectively convey a message.
- W.4.14 Write simple, compound and complex sentence structures based on the writing situation.
- W.4.15 Use correct spelling consistently in writing.
- W.4.16 Punctuate writing correctly using semicolons, colons, hyphens, dashes and brackets.
- W.4.17 Use correct capitalization.
- W.4.18 Incorporate parts of speech and grammatical structures (for example, clauses, phrases, placement of modifiers) in writing.

#### ***Editing and Revising***

- W.4.19 Reread and revise writing to clarify meaning (for example, sentence variety, transitions among paragraphs).
- W.4.20 Proofread writing and edit to improve conventions and to correct dangling and misplaced modifiers, fragments and run-ons.
- W.4.21 Seek feedback from peers and teachers (for example, through discussions, conferencing, written comments).
- W.4.22 Use checklists and rubrics to judge the quality of work and improve writing.

### ***Publishing***

- W.4.23 Use available technology to compose, revise and edit text.
- W.4.24 Present information using a variety of means such as oral, visual, written or multimedia.

## ***Convey Ideas in Writing***

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### ***Low Adult Secondary Education (Level 5)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 5, students will know and be able to:

#### ***Prewriting***

- W.5.1 Adjust the topic, audience and purpose for a writing situation.
- W.5.2 Develop writing for a broad range of purposes (for example, to support a thesis, to reinforce a controlling idea).
- W.5.3 Develop writing for varying types of tasks (for example, electronic communications, persuasive essays).
- W.5.4 Use and adjust strategies (as needed) to generate ideas for each writing situation.
- W.5.5 Develop a thesis statement that establishes a clear focus for the writing.
- W.5.6 Create a plan to integrate level-appropriate sources in support of a thesis.
- W.5.7 Avoid plagiarism by quoting and citing borrowed source material.
- W.5.8 Use style guides to format writing and give proper credit for sources (for example, in a bibliography).
- W.5.9 Use organizational strategies to plan writing in support of a thesis.
- W.5.10 Evaluate and adjust an organizational pattern (for example, time order, compare and contrast, cause and effect) to produce writing that extends the thesis.

#### ***Drafting***

- W.5.11 Develop writing to create a coherent whole with an engaging introduction, a body and a conclusion that summarizes, extends or elaborates on points or ideas in the writing.
- W.5.12 Arrange paragraphs in a logical sequence using transitions to maintain coherence across the whole text.
- W.5.13 Use precise language, active voice and descriptive detail to convey a personal style and voice.
- W.5.14 Vary simple, compound and complex sentence structures based on the writing situation.
- W.5.15 Use correct spelling, punctuation and capitalization consistently in writing.
- W.5.16 Use appropriate grammatical structures (for example, subject-verb agreement with collective nouns, parallel structures) in writing.

#### ***Editing and Revising***

- W.5.17 Reread, analyze and revise writing for clarity and to ensure consistent style and voice.
- W.5.18 Proofread writing and edit to improve sentence fluency and grammar usage.

W.5.19 Use reflective strategies for critiquing and evaluating own and others' writing.

***Publishing***

W.5.20 Use available technology to compose, revise and edit text.

W.5.21 Prepare writing for publication by following a form appropriate to the purpose and include graphics as appropriate to enhance the final product.

## ***Convey Ideas in Writing***

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### ***High Adult Secondary Education (Level 6)***

The following benchmarks are statements that every Ohio ABE/ASE student will demonstrate in order to advance to the next NRS EFL.

By the end of Level 6, students will know and be able to:

#### ***Prewriting***

- W.6.1 Plan strategies to address topic, purpose and audience.
- W.6.2 Develop writing for a broad range of purposes (for example, to analyze, to synthesize, to evaluate, to reflect, to interpret).
- W.6.3 Develop writing for varying applications (for example, electronic communications, academic writing, workplace writing).
- W.6.4 Use and adjust strategies (as needed) to generate ideas for each writing situation.
- W.6.5 Produce text to extend the thesis and create a coherent whole.
- W.6.6 Evaluate sources and integrate them in support of a thesis.
- W.6.7 Avoid plagiarism by accurately and correctly quoting, paraphrasing and summarizing material from research.
- W.6.8 Cite sources using a style guide (for example, Modern Language Association [MLA], American Psychological Association [APA], Chicago).
- W.6.9 Produce, organize and sufficiently develop writing in support of a thesis.

#### ***Drafting***

- W.6.10 Use transitional devices within an effective organizational structure.
- W.6.11 Use precise language, active voice, sensory details, colorful modifiers and style as appropriate to audience and purpose, and use techniques to convey a personal style and voice.
- W.6.12 Employ sentences of varying lengths and structures that are appropriate to audience, purpose and context.
- W.6.13 Use appropriate conventions of the English language, including grammar and usage, punctuation, capitalization and spelling.

#### ***Editing and Revising***

- W.6.14 Reread, analyze and revise writing for clarity, consistent point of view and effective organizational structure.
- W.6.15 Proofread writing and edit to improve sentence fluency and grammar usage.
- W.6.16 Use reflective strategies for critiquing and evaluating own and others' writing.

## ***Publishing***

- W.6.17 Employ electronic means to create, manipulate, clarify and enhance a variety of print and nonprint texts.
- W.6.18 Prepare writing for publication by following a form appropriate to the purpose and include graphics as appropriate to enhance the final product.

## ***Tips for Teaching Writing***

Writing is usually described as a process, something that shows continuous change over time. Different things happen at different stages in the process of putting thoughts into words and words onto paper. Students need to have a clear understanding of the writing process: prewriting, drafting, editing and revising and publishing.

Students also need to see that the stages of the process are fluid. They are not a list of tasks to be completed in a rigid, lock-step manner. Some writing never goes beyond the draft stage; other writing is completed through the publication stage.

Teaching students strategies for writing has shown a dramatic effect on the quality of students' writing. Strategy instruction involves explicitly and systematically teaching steps necessary for all stages in the writing process. The ultimate goal is to teach students to use these strategies independently.

- Help students increase their autonomy, independence and range as writers.
- Lead students to feel that *they* are writers and that writing can be enjoyable.
- Give students time to write.
- Have students write for authentic purposes, such as letters to the editor, forms, forums and blogs, personal correspondence, poetry, journaling and research papers.

### ***Prewriting***

- Don't let students overlook prewriting.
- Suggest different ways for students to generate and organize ideas.
  - Brainstorm.
  - Make a web.
  - Do an outline.
  - Draw a Venn diagram.
- Guide students through the phases of prewriting.
  - Select a topic.
  - Identify a purpose for writing.
  - Select an audience.
  - Decide on a method of delivery.
  - Research and focus a topic.

*You would not leave for vacation without a plan for where you are going.*

### ***Drafting***

- Explain to students that a draft is a first attempt, not the final product.
- Focus students' attention on content, not on mechanics.
- To teach grammatical points, use actual

*Consider what it is like traveling somewhere unfamiliar. Each time you go, the trip is better than the time before—you are less likely to get lost, and the trip is more productive. The same is true of writing.*

sentences from students' writing or from your own writing.

- Define punctuation, capitalization and spelling by building examples across levels.

### ***Editing and Revising***

- Explain to students that editing and revising are a part of every writing assignment—they're not finished just because they've put the final period on the draft.
- Have each student take a second look at his or her draft.
- Have students read other students' drafts and provide feedback.
- Read each student's draft yourself and provide your own feedback.
- Explain to students what editing and revising might include.
  - Add or delete sentences.
  - Reorganize the sequence of sentences or paragraphs.
  - Narrow the focus of writing.
  - Add supporting details.
  - Change the tone or style.
  - Draft a new opening or closing.
  - Make substantial cuts or additions.
  - Elaborate an argument or main point.
  - Change the viewpoint, structure or focus.
- Guide students in identifying revisions needed based on their own review of a draft and on feedback from peers and from you.
- Remind students to proofread and edit the revised draft for correct grammar, spelling and mechanics.

*You may have chosen to reroute your trip because you found a better route that helped you reach your destination more easily.*

### ***Publishing***

- Orient students to the concept of publishing.
  - Publishing is not just for famous novelists and journalists.
  - Any writing can be published.
- Publishing means getting the polished piece into the hands of any intended reader for the intended purpose.
  - Friends and neighbors
  - Teachers and family
  - The general public
  - Any members of any community
- Getting someone to read a piece is publishing.
- Knowing that others will read a piece can motivate students to make certain the piece reaches its highest possible potential.
- Help students taking ownership of the writing before publishing.

*When you return from vacation, you share pictures and make recommendations to friends and family.*