

## DISCLAIMERS

The OCTAE College and Career Readiness Standards document below contains links to other websites, all of which are revised from time to time. *Laurens County Adult Education is neither responsible for the content of these links nor the current availability of the links.*

Some of the online links may take the teacher to a Common Core website that offers free worksheets. The teacher should always vet the worksheet before assigning it to students. Anyone who follows the news or social media has seen ridiculous Common Core math problems on worksheets that elementary school teachers have sent home with students for homework. Examine all worksheets closely to see that they will be effective for adult students before you decide to print and use them.

These documents are not perfect. They are merely intended to give the teacher a starting point for each standard.

Please send any corrections that need to be addressed to Anita Wilson at [awilson@laurens55.org](mailto:awilson@laurens55.org).

Constructive feedback is also welcomed.

## **Using the College and Career Readiness Standards Documents**

1. Every document is formatted so that each standard is presented on exactly one page. Because of this formatting, the print size will differ from page to page depending on the length of the standard or the number of print or online resources aligned with the standard. Font sizes will range from 9 to 12, with most being either 10 or 11.
2. The list of print resources is merely a starting point. Included are the most commonly used books here at Laurens County Adult Education for the 2014 series GED® tests. Other resources include the Contemporary books, the Steck-Vaughn GED books, the Number Power series, etc., that were used for the 2002 series GED® tests. All of the Laurens County Adult Education sites will have some, but perhaps not all, of those additional resources since books have disappeared over the years and the older books have not been replaced. Some of the print resources are closely aligned, but many may be loosely aligned.
3. The list of online resources is also merely a starting point. As with print resources, some online resources are better than others. The teacher should always vet a website before sending students to that website. Khan Academy (Mathematics) and Learnzillion often include videos to explain the standard. Note that the links included in each document will take the teacher to a “home page” for each standard. Khan Academy, for example, may have several links under each standard, and when the teacher clicks on each link, the teacher will find several lessons to address the standard. Feel free to explore each website to determine lessons that best suit individual students.
4. The reading level for some of the print resources may be above the reading level of some of the students in your class who are on the Low Intermediate Level. The teacher may find the print resources useful for generating ideas for lessons for weaker readers.

## CCR Level 3 Math (Low Intermediate ABE)

5. The iPad resources mostly include the “Maths” app by Your Teacher. There is a “Fraction Math” app that can be useful for the low intermediate student.

For example, the directions on the iPad resources may look something like this:

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Multiples and Least Common Multiple**

To reach this lesson, tap the “Maths App” folder at the bottom of the iPad. Then tap on “Maths.” The home screen offers four courses (Pre-Algebra, Algebra 1, Geometry, and Algebra 2). Select “Pre-Algebra.” Then select “Chapter 3: Fractions.” The screen will open up to give you multiple topics. Select “Multiples and Least Common Multiple.”

The Fraction Math app opens up with a menu of five selections (Settings, Set, New, Terms, and Tip). Start with “Settings.” A new menu opens up to let the teacher select addition, subtraction, multiplication, division, or any combination of the four operations by sliding the button beside each symbol. The teacher may then determine whether to allow only the same denominators, allow whole numbers, allow mixed numbers, allow negative numbers, or allow big numbers (greater than 12). Each lesson can be customized to fit the individual student's needs.

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Generalize place value understanding for multi-digit whole numbers.

**Standard 4.NBT.1** 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  $700 \div 70 = 10$  by applying concepts of place value and division.

#### **Background knowledge needed**

Understanding the concepts of 0 and the whole numbers

Understanding that  $100 = 10 \cdot 10$ ;  $1000 = 100 \cdot 10$ ;  $10,000 = 1000 \cdot 10$ , etc.

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Place Value**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Lesson 1
2. Steck-Vaughn Access Mathematics, Unit 1 Lesson1
3. Common Core Basics Mathematics, Lesson 1.1
4. Kaplan Big Book: Number Sense and Problem Solving, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NBT#4.NBT.A.1>

<https://learnzillion.com/lessonsets/155-understand-multi-digit-whole-number-place-value-concepts>

<http://quizlet.com/subject/place-value-base-ten/>

<http://www.ixl.com/math/grade-4> Number sense: A.1, A.2

<https://www.illustrativemathematics.org/content-standards/4/NBT/A/1>

<http://run.careerready101.com/admin/workbooks.asp> pp. 43 – 47 (Applied Mathematics Workbook, Level 1)

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Generalize place value understanding for multi-digit whole numbers.

**Standard 4.NBT.2** 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.

#### **Background knowledge needed**

Understanding of the concepts of 0 and the whole numbers, including the number line

Understanding place value, using powers of 10

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1 Whole Numbers >> Comparing Numbers**

**MathPro!!! >> Grade 5 Math, Objective 2: Numbers and Number Sense >> Chapter 3**

#### **Print resources**

1. Steck-Vaughn GED Mathematics, Lesson 1
2. Steck-Vaughn Access Mathematics, Unit 1 Lesson 1
3. Common Core Basics Mathematics, Lesson 1.1
4. Kaplan Big Book: Number Sense and Problem Solving, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NBT#4.NBT.A.2>

<https://learnzillion.com/lessonsets/167-read-write-and-compare-multi-digit-whole-numbers>

<http://quizlet.com/43778982/comparing-and-ordering-whole-numbers-flash-cards/>

<http://www.ixl.com/math/grade-4> Number sense: A.3 and A.9

<https://www.illustrativemathematics.org/content-standards/4/NBT/A/2>

<http://run.careerready101.com/admin/workbooks.asp> pp. 48 – 55 (Applied Mathematics Workbook, Level 1)

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Generalize place value understanding for multi-digit whole numbers.

**Standard 4.NBT.3** Use place value understanding to round multi-digit whole numbers to any place.

#### **Background knowledge needed**

Understanding place value

Understanding the definition of rounding (if the digit is 5 or greater, round up)

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Rounding Numbers**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, Unit 1 Lesson 1
2. Common Core Basics Mathematics, Lesson 1.5
3. Kaplan Big Book: Number Sense and Problem Solving, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NBT#4.NBT.A.3>

<https://learnzillion.com/lessonsets/239-round-multi-digit-whole-numbers-to-any-place>

<http://quizlet.com/44949248/4nbt3-rounding-whole-numbers-flash-cards/>

<http://www.ixl.com/math/grade-4> Number sense: A.6

<https://www.illustrativemathematics.org/content-standards/4/NBT/A/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Use place value understanding and properties of operations to perform multi-digit arithmetic.

**Standard 4.NBT.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm.

#### **Background knowledge needed**

Understanding addition facts and the concept of regrouping (carrying over to the place value holder immediately to the left)

Understanding the concept of borrowing 10 from the place value on the left and adding those 10 to the current place value holder

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Addition; also, Subtraction**

**MathPro!!! >> Grade 5, Objective 4: Computation and Estimation >> Chapters 2 and 4**

#### **Print resources**

1. TABE Fundamentals, Level M Math Computation, Lesson 1 – 4
2. Building Skills with TABE 2<sup>nd</sup> edition, Level E, pp. 4 – 21
3. Steck-Vaughn GED Mathematics, Lesson 2 (Adding and Subtracting Whole Numbers)
4. Steck-Vaughn Access Mathematics, Unit 1 Lesson 2
5. Common Core Basics Mathematics, Lesson 1.2
6. Kaplan Big Book: Number Sense and Problem Solving, Lesson 2 (Addition and Subtraction)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NBT#4.NBT.B.4>

<https://learnzillion.com/lessonsets/622-add-and-subtract-using-the-standard-algorithm>

<http://quizlet.com/14675802/adding-and-subtracting-whole-numbers-flash-cards/>

<http://www.ixl.com/math/grade-4> Addition B.1, B.2, B.5, B.6; Subtraction C.1, C.2

<https://www.illustrativemathematics.org/content-standards/4/NBT/B/4>

<http://run.careerready101.com/admin/workbooks.asp> pp. 56 – 131 (Addition) and pp. 132 – 206 (Subtraction) (Applied Mathematics Workbook, Level 1)

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Use place value understanding and properties of operations to perform multi-digit arithmetic.

**Standard 4.NBT.5** 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.

#### Background knowledge needed

Knowing the multiplication tables up to  $12 \cdot 12$

Understanding the concept of carrying over to the place value on the left when the product exceeds 9 in any place value holder

#### iPad resources

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Multiplication**

**Times Table app (for students needing to learn their multiplication facts)**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapter 6**

#### Print resources

1. TABE Fundamentals Level M Math Computation, Lessons 5 and 6
2. Building Skills with TABE, 2<sup>nd</sup> edition, Level E, pp. 22 – 29 (Multiplication by a single digit only)
3. Building Skills with TABE, 2<sup>nd</sup> edition, Level M, pp. 23 – 27
4. Steck-Vaughn GED Mathematics (the red book), Lesson 2 (Multiplying Whole Numbers)
5. Steck-Vaughn Access Mathematics, Unit 1 Lesson 3 (Multiplying Whole Numbers)
6. Common Core Basics Mathematics, Lesson 1.3 (Multiplying Whole Numbers)
7. Kaplan Big Book: Number Sense and Problem Solving, Lesson 2 (Multiplication)

#### Online resources

<https://www.khanacademy.org/commoncore/grade-4-NBT#4.NBT.B.5>

<https://learnzillion.com/lessonsets/360-multiply-multi-digit-whole-numbers>

<http://quizlet.com/60878492/chapter-3-multiplying-whole-numbers-flash-cards/>

<http://www.ixl.com/math/grade-4> Multiplication D.1, D.5, D.6, D.7, D.15, D.16, D.17, D.18, D.19

<https://www.illustrativemathematics.org/content-standards/4/NBT/B/5>

<http://run.careerready101.com/admin/workbooks.asp> pp. 208 – 287 (Applied Mathematics Workbook, Level 1)



## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Use place value understanding and properties of operations to perform multi-digit arithmetic.

**Standard 4.NBT.6** 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.

#### **Background knowledge needed**

Understanding the multiplication tables and division facts up to 12

Understanding that division is the inverse of multiplication

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Division (first two lessons)**

**Division app (Change the settings to have 1 digit in the divisor and up to 4 digits in the dividend before the student uses the app.)**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapter 8**

#### **Print resources**

1. TABE Fundamentals, Level M, Lessons 7 and 8
2. Building Skills with TABE, 2<sup>nd</sup> edition, Level E, pp. 30 – 37
3. Building Skills with TABE, 2<sup>nd</sup> edition, Level M, pp. 28 – 34
4. Steck-Vaughn Access Mathematics, Lesson 3, pp. 38 – 41
5. Common Core Basics Mathematics, Lesson 1.3, pp. 23 – 25
6. Kaplan Big Book: Number Sense and Problem Solving, Lesson 2

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 76 - 77

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NBT#4.NBT.B.6>

<https://learnzillion.com/lessonsets/260-find-whole-number-quotients-and-remainders-with-up-to-four-digit-dividends>

<http://quizlet.com/13368938/math-ch-9-vocabulary-divide-by-a-one-digit-number-flash-cards/>

<http://www.ixl.com/math/grade-4> Division: E.4, E.5, #.7, E.8, E.9, E.11, E.13

<https://www.illustrativemathematics.org/content-standards/4/NBT/B/6>

<http://run.careerready101.com/admin/workbooks.asp> pp. 289 - 358

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Understand the place value system.

**Standard 5.NBT.1** 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  $\frac{1}{10}$  of what it represents in the place to its left.

#### **Background knowledge needed**

Understanding the value of each digit in each place value holder

Understanding how to multiply and divide a number by 10

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Place Value**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Unit 1 Lesson 1
2. Steck-Vaughn Access Mathematics, Lesson1
3. Common Core Basics Mathematics, Lesson 1.1
4. Kaplan Big Book: Number Sense and Problem Solving, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.A.1>

<https://learnzillion.com/lessonsets/554-recognize-the-value-of-digits-in-a-multi-digit-number-using-number-lines-and-base-ten-blocks>

<http://quizlet.com/44956740/place-value-step-5-flash-cards/>

<http://www.ixl.com/math/grade-5> Place values and number sense A.1, A.2

<https://www.illustrativemathematics.org/content-standards/5/NBT/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Understand the place value system.

**Standard 5.NBT.2** Explain patterns in the number of zeroes 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 divide by a power of 10.

#### **Background knowledge needed**

Understanding the numerical value of each place value holder in a whole number and in a decimal number

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Intro to Decimals**

#### **Print resources -- note that all of these resources are loosely aligned to this standard**

1. Steck-Vaughn GED Mathematics (the red book), Lesson 1
2. Steck-Vaughn Access Mathematics, Unit 1 Lesson 1 and Unit 3 Lesson 8 have the charts showing place values
3. Common Core Basics Mathematics, Lessons 1.1 and 2.1
4. Kaplan Big Book: Decimals and Fractions, Lesson 1 has the chart

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.A.2>

<https://learnzillion.com/lessonsets/413-explain-and-represent-patterns-in-zeros-when-multiplying-or-dividing-by-a-power-of-ten>

<http://quizlet.com/44956879/place-value-step-6-flash-cards/>

<http://www.ixl.com/math/grade-5> Multiplication F.3; Division H.7; Multiply decimals G.2; Division with decimals, I.1 and I.2

<https://www.illustrativemathematics.org/content-standards/5/NBT/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Understand the place value system.

**Standard 5.NBT.3** Read, write, and compare decimals to thousandths.

#### **Background knowledge needed**

Understanding place value with tenths, hundredths, and thousandths

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Comparing Decimals**

**MathPro!!! >> Grade 5 Math, Objective 2: Numbers and Number Sense >> Chapters 4 - 5**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Lesson 8
2. Steck-Vaughn Access Mathematics, Unit 3, Lesson 8
3. Common Core Basics Mathematics, Lesson 2.1 (loosely aligned to this standard)
4. Kaplan Big Book: Decimals and Fractions, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.A.3>

<https://learnzillion.com/lessonsets/735-read-and-write-decimals-to-thousandths-using-base-ten-numerals>

<http://quizlet.com/18311687/reading-decimals-to-thousandths-place-flash-cards/>

<http://www.ixl.com/math/grade-5> Decimals C.3, C.5, C.10, C.11

<https://www.illustrativemathematics.org/content-standards/5/NBT/A/3>

CCR Level 3 Math (Low Intermediate ABE)

Number and Operations: Base Ten (+ The Number System)

Understand the place value system.

**Standard 5.NBT.3a** Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,  $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .

**Background knowledge needed**

Understanding place value to the thousandths place in a number

**iPad resources**

NONE

**Print resources**

NONE

**Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.A.3a>

<https://learnzillion.com/lessonsets/735-read-and-write-decimals-to-thousandths-using-base-ten-numerals>

<https://learnzillion.com/lessonsets/638-read-and-write-decimals-to-the-thousandths>

<https://learnzillion.com/lessonsets/134-read-and-write-decimals-to-the-thousandths-in-numeric-word-and-expanded-form>

<http://quizlet.com/18311687/reading-decimals-to-thousandths-place-flash-cards/>

<http://www.ixl.com/math/grade-5> Decimals: C.3, C.5

<https://www.illustrativemathematics.org/content-standards/5/NBT/A/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Understand the place value system.

**Standard 5.NBT.3b** Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

#### **Background knowledge needed**

Understanding place value

Understanding these symbols:  $>$ ,  $=$ , and  $<$

#### **iPad resources**

**Maths apps >> Pre-Algebra >> Chapter 4: Decimals >> Comparing Decimals**

**MathPro!!! >> Grade 5 Math, Objective 2: Numbers and Number Sense >> Chapter 5**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, pp. 124 – 125
2. Steck-Vaughn GED Mathematics (the red book), pp. 106 – 107
3. Common Core Basics Mathematics, Lesson 2.1
4. Kaplan Big Book: Number Sense and Problem Solving, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.A.3b>

<https://learnzillion.com/lessonsets/234-compare-two-decimals-to-thousandths-using-and>

<https://quizlet.com/56706958/comparing-decimal-numbers-2-to-the-thousandths-flash-cards/>

<http://www.ixl.com/math/grade-5> Decimals: C.9 and C.10

<https://www.illustrativemathematics.org/content-standards/5/NBT/A/3/tasks/1803>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Understand the place value system.

**Standard 5.NBT.4** Use place value understanding to round decimals to any place.

#### **Background knowledge needed**

Understanding the concept of rounding

Understanding place value

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Rounding Decimals**

**MathPro!!! >> Grade 5 Math, Objective 2: Numbers and Number Sense >> Chapter 6**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, pp. 124 – 125
2. Steck-Vaughn GED Mathematics (the red book), pp. 106 – 107
3. Common Core Basics Mathematics, Lesson 2.1
4. Kaplan Big Book: Decimals and Fractions, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.A.4>

<https://learnzillion.com/lessonsets/416-round-decimals-to-any-place>

<https://quizlet.com/52331402/rounding-decimals-to-whole-numbers-tenths-and-more-flash-cards/>

<http://www.ixl.com/math/grade-5> Decimals, C.7

<https://www.illustrativemathematics.org/content-standards/5/NBT/A/4/tasks/1804>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Perform operations with multi-digit whole numbers and with decimals to hundredths.

**Standard 5.NBT.5** Fluently multiply multi-digit whole numbers using the standard algorithm.

#### **Background knowledge needed**

Understanding the multiplication tables

Understanding place value and the concept of “carrying” to the next column when products exceed the number 9

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Multiplication**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapter 6**

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 76 - 79

#### **Print resources**

1. TABE Fundamentals, Level M Math Computation, Lesson 6
2. Building Skills with TABE 2<sup>nd</sup> edition, Level M, pp. 20 – 27
3. Steck-Vaughn Access Mathematics, Unit 1, Lesson 3 (the multiplication part)
4. Steck-Vaughn GED Mathematics (the red book), pp. 44 – 45 (the multiplication portions)
5. Common Core Basics Mathematics, Lesson 1.3 (the multiplication portion)
6. Kaplan Big Book: Number Sense and Problem Solving, pp. 224 – 225 (the multiplication portion)
7. <http://run.careerready101.com/admin/workbooks.asp>, Applied Mathematics (Level 1), pp. 275 – 287

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.B.5>

<https://learnzillion.com/lessonsets/789-use-the-standard-algorithm-for-multiplication-of-multi-digit-numbers>

<https://quizlet.com/56538179/multi-digit-multiplication-flash-cards/>

<http://www.ixl.com/math/grade-5> Multiplication, F.13 – F.19

<https://www.illustrativemathematics.org/content-standards/5/NBT/B/5>



## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Perform operations with multi-digit whole numbers and with decimals to hundredths.

**Standard 5.NBT.6** 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.

#### **Background knowledge needed**

Understanding the multiplication tables and division facts up through 12

Understanding place value

Understanding division by a one-digit number

#### **iPad resources**

**Maths app** >> Pre-Algebra >> Chapter 1: Whole Numbers >> Division

**Division app** >> change settings to 2 digits in divisor and 4 digits in dividend (also, you may want to turn off the sound unless the student is using earbuds)

**MathPro!!!** >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapter 8

#### **Print resources**

1. Building Skills with TABE 2<sup>nd</sup> edition, Level M, pp. 28 – 34 (note: some of these problems have remainders, and this standard focuses on whole-number quotients)
2. Steck-Vaughn Access Mathematics, Unit 1, Lesson 3 (the division portion)
3. Steck-Vaughn GED Mathematics (the red book), pp. 44 – 45 (the division portion)
4. Common Core Basics Mathematics, Lesson 1.3 (the division portion)
5. Kaplan Big Book: Number Sense and Problem Solving, pp. 224 – 225 (the division portion)
6. <http://run.careerready101.com/admin/workbooks.asp>, Applied Mathematics (Level 1), pp. 359 - 368

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 76 - 77

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.B.6>

<https://learnzillion.com/lessonsets/211-find-whole-number-quotients-with-up-to-4-digit-dividends-and-2-digit-divisors>

<https://quizlet.com/33577604/chapter-4-divide-by-a-2-digit-divisor-flash-cards/>

<http://www.ixl.com/math/grade-5> , Division: H.10 and H.12

<https://www.illustrativemathematics.org/content-standards/5/NBT/B/6>

## CCR Level 3 Math (Low Intermediate ABE)

### Number and Operations: Base Ten (+ The Number System)

Perform operations with multi-digit whole numbers and with decimals to hundredths.

**Standard 5.NBT.7** 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 subtractions; related the strategy to a written method and explain the reasoning used. [Note from CCR Standards Panel: Applications involving financial literacy should be used.]

#### **Background knowledge needed**

Understanding the four operations on whole numbers

Understanding place value

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Adding Decimals; also, Subtracting Decimals; also, Multiplying Decimals by Decimals; also, Dividing Decimals by Decimals**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapters 17- 20**

#### **Print resources**

1. TABE Fundamentals Math Computation, Level D, Lessons 4 – 7
2. Building Skills with TABE 2<sup>nd</sup> edition, Level M, pp. 36 – 41
3. Steck-Vaughn Access Mathematics, Unit 3 (all lessons)
4. Steck-Vaughn GED Mathematics (the red book), Unit 1, Lesson 9
5. Common Core Basics Mathematics, Chapter 2 (all lessons)
6. Kaplan Big Book: Decimals and Fractions, Lesson 2
7. <http://run.careerready101.com/admin/workbooks.asp> Applied Mathematics (Level 2), unit on Money, pp. 57 - 97

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NBT#5.NBT.B.7>

<https://learnzillion.com/lessonsets/189-adding-and-subtracting-decimals-to-hundredths>

<https://learnzillion.com/lessonsets/229-multiply-and-divide-by-decimals-to-the-hundredths>

<https://quizlet.com/20752204/operations-with-decimals-flash-cards/>

<http://www.ixl.com/math/grade-5> Add and subtract decimals, E.1 – E.3; Multiply decimals, G.8 and G.9; Division with decimals, I.1 – I.3

<https://www.illustrativemathematics.org/content-standards/5/NBT/B/7>

## CCR Level 3 Math (Low Intermediate ABE)

### The Number System

Compute fluently with multi-digit numbers and find common factors and multiples.

**Standard 6.NS.2 Fluently divide multi-digit numbers using the standard algorithm.**

#### **Background knowledge needed**

Understanding the multiplication tables and division facts through 12

Understanding place value

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Division**

**Division app >> change settings to the number of digits you want in both the divisor and the dividend (also, you may want to turn off the sound unless the student is using earbuds)**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapter 8**

#### **Print resources**

1. TABE Fundamentals Math Computation, Level D, Lessons 2 and 3
2. Building Skills with TABE 2<sup>nd</sup> edition, Level M, pp. 28 – 34
3. Steck-Vaughn Access Mathematics, Unit 1, Lesson 3
4. Steck-Vaughn GED Mathematics, Unit 1, Lesson 2 (the division portion)
5. Common Core Basics Mathematics, Lesson 1.3 (the division portion)
6. Kaplan Big Book: Number Sense and Problem Solving, Lesson 2 (the division portion)

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-NS#6.NS.B.2>

<https://learnzillion.com/lessonsets/368-divide-multi-digit-numbers-using-the-standard-algorithm>

<https://quizlet.com/45290086/dividing-multi-digit-numbers-flash-cards/>

<http://www.ixl.com/math/grade-6> Division: L.1 – L.6

<https://www.illustrativemathematics.org/content-standards/6/NS/B/2>

## CCR Level 3 Math (Low Intermediate ABE)

### The Number System

Compute fluently with multi-digit numbers and find common factors and multiples.

**Standard 6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

#### **Background knowledge needed**

Understanding the use of the four operations with whole numbers

Understanding place value

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Adding Decimals; also, Subtracting Decimals; also, Multiplying Decimals by Decimals; also, Dividing Decimals by Decimals**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapters 17 - 20**

#### **Print resources**

1. TABE Fundamentals Math Computation, Level D, Lessons 4 – 7
2. Building Skills with TABE 2<sup>nd</sup> edition, Level M, pp. 36 – 41
3. Steck-Vaughn Access Mathematics, Unit 3, Lessons 9 and 10
4. Steck-Vaughn GED Mathematics (the red book), Unit 1, Lesson 9
5. Common Core Basics Mathematics, Chapter 2 (all lessons)
6. Kaplan Big Book: Decimals and Fractions, Lesson 2

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-NS#6.NS.B.3>

<https://learnzillion.com/lessonsets/403-perform-operations-with-decimals-using-the-standard-algorithm>

<https://quizlet.com/20752204/operations-with-decimals-flash-cards/>

<http://www.ixl.com/math/grade-6> Add and subtract decimals, J.1 and J.2; Multiply and divide decimals, O.1, O.4, O.5, O.6, and O.7

<https://www.illustrativemathematics.org/content-standards/6/NS/B/3>

## CCR Level 3 Math (Low Intermediate ABE)

### The Number System

Compute fluently with multi-digit numbers and find common factors and multiples.

**Standard 6.NS.4** 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  $4(9 + 2)$ .*

#### **Background knowledge needed**

Understanding the difference between factors and multiples

Understanding the concept of common factors and common multiples

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Factors & Primes; also, Prime Factorization; also, Multiples & Least Common Multiple; also, Greatest Common Factor**

**MathPro!!! >> Pre-Algebra, Objective 2: Integers and Integer Rules >> Chapters 10 - 11**

#### **Print resources**

1. Common Core Basics Mathematics, Lesson 1.4
2. Common Core Achieve Mathematics, Lesson 1.2

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-NS#6.NS.B.4>

<https://learnzillion.com/lessonsets/598-understand-and-find-greatest-common-factor-and-least-common-multiple>

<https://quizlet.com/76055540/greatest-common-factor-and-least-common-multiple-flash-cards/>

<http://www.ixl.com/math/grade-6> Number theory, N.6, N.7, and N.8

<https://www.illustrativemathematics.org/content-standards/6/NS/B/4>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

Extend understanding of fraction equivalence and ordering.

**Standard 4.NF.1** Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fractional models, with attention to how the number and size of the parts differ even though the fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

#### **Background knowledge needed**

Understanding that any number multiplied by 1 (in the form of  $n/n$ ) yields the same number

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Intro to Fractions; also, Equivalent Fractions – Part 1; also, Equivalent Fractions – Part 2**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, pp. 76 – 78
2. Steck-Vaughn GED Mathematics (the red book), Unit 1, Lesson 6
3. Common Core Basics Mathematics, Lesson 3.1
4. Kaplan Big Book: Decimals and Fractions, Lesson 3
5. <http://run.careerready101.com/admin/workbooks.asp>, Applied Mathematics (Level 2), pp. 189 - 207

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.A.1>

<https://learnzillion.com/lessonsets/175-understand-and-explain-equivalent-fractions-using-visual-models>

<https://quizlet.com/45051483/visual-fraction-models-flash-cards/>

<http://www.ixl.com/math/grade-4> Fraction equivalence and ordering, Q.3 and Q.5

<https://www.illustrativemathematics.org/content-standards/4/NF/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

Extend understanding of fraction equivalence and ordering.

**Standard 4.NF.2** 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  $\frac{1}{2}$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ ,  $<$ , and justify the conclusions, e.g.

#### **Background knowledge needed**

Understanding the concept of a fraction as a part of a whole

Understanding the terms *numerator* and *denominator*

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Comparing Fractions**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, p. 79
2. Steck-Vaughn GED Mathematics (the red book), pp. 80 – 81
3. Common Core Basics Mathematics, Lesson 3.1
4. Common Core Achieve Mathematics, Lesson 1.1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.A.2>

<https://learnzillion.com/lessonsets/220-compare-fractions-by-creating-common-denominators-or-numerators-2>

<https://learnzillion.com/lessonsets/7-compare-fractions-of-different-types>

<https://quizlet.com/46461192/comparing-fractions-flash-cards/>

<http://www.ixl.com/math/grade-4> Fraction equivalence and ordering, Q.9, Q.10, Q.12, Q.13, and Q.15

<https://www.illustrativemathematics.org/content-standards/4/NF/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.3** Understand a fraction  $a/b$  with  $a > 1$  as a sum of fractions  $1/b$ .

#### **Background knowledge needed**

Understanding operations on whole numbers

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Intro to Fractions**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, Unit 2, Lesson 5
2. Steck-Vaughn GED Mathematics (the red book), Unit 1, Lesson 5
3. Common Core Basics Mathematics, Lesson 3.1
4. Kaplan Big Book: Decimals and Fractions, Lesson 3

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.3>

<https://quizlet.com/54253007/grade-4-fractions-flash-cards/>

<http://www.ixl.com/math/grade-4> Fraction equivalence and ordering, Q.1 and Q.2

<https://www.illustrativemathematics.org/4.NF.B.3>

<http://www.funintel.com/funny-picture/14823-such-an-easy-way-to-teach-fractions-using-legos-to-children.html>



## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.3a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

#### **Background knowledge needed**

Understanding the concept of a fraction in which  $a/a = 1$ , the whole (assuming  $a \neq 0$ )

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Adding & Subtracting Like Fractions**

#### **Print resources**

1. Building Skills with TABE, 2<sup>nd</sup> edition, Level M, pp. 42 – 45
2. TABE Fundamentals Math Computation, Level M, Lessons 12 and 13
3. Common Core Basics Mathematics, Lesson 3.2 (only the section regarding adding and subtracting with like denominators)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.3a>

<https://learnzillion.com/lessonsets/290-understand-addition-and-subtraction-of-fractions-and-decomposing-fractions-1>

<https://learnzillion.com/lessonsets/312-understand-addition-and-subtraction-of-fractions-and-decomposing-fractions-2>

<https://quizlet.com/54253007/grade-4-fractions-flash-cards/>

<http://www.ixl.com/math/grade-4> Add and subtract fractions with like denominators, all lessons R.1 – R.12

<https://www.illustrativemathematics.org/4.NF.B.3> (scroll down to task for 4.NF.B.3.a)

<http://www.funintel.com/funny-picture/14823-such-an-easy-way-to-teach-fractions-using-legos-to-children.html>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.3b** 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:  $3/8 = 1/8 + 1/8 + 1/8$ ;  $3/8 = 1/8 + 2/8$ ;  $2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$ .

#### Background knowledge needed

Understanding addition of whole numbers and using that skill to add the numerators of fractions having the same denominators

#### iPad resources

**Fraction Math (change settings to “only same denominators,” and select only addition)**

#### Print resources

**NONE**

#### Online resources

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.3b>

<https://learnzillion.com/lessonsets/290-understand-addition-and-subtraction-of-fractions-and-decomposing-fractions-1>

<https://learnzillion.com/lessonsets/312-understand-addition-and-subtraction-of-fractions-and-decomposing-fractions-2>

<https://quizlet.com/42444633/decomposing-fractions-flash-cards/>

<http://www.ixl.com/math/grade-4> Add and subtract fractions with like denominators, R.1, R.2, and R.3

<https://www.illustrativemathematics.org/4.NF.B.3> (Scroll down to tasks for 4.NF.B.3.b)

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.3c** 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.

#### **Background knowledge needed**

Understanding of the concept of a mixed number

Understanding of addition and subtraction rules

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Adding Mixed Numbers; also, Subtracting Mixed Numbers**

**Fraction Math (change settings to include both addition and subtraction, only same denominators, and allow mixed numbers)**

**MathPro!!! >> Grade 5 Math, Objective 4: Computation and Estimation >> Chapters 22 and 23**

#### **Print resources**

1. TABE Fundamentals Math Computation, Level D, Lessons 8 and 9

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.3c>

<https://learnzillion.com/lessonsets/178-add-and-subtract-mixed-numbers-with-like-denominators>

<https://quizlet.com/73092903/adding-mixed-numbers-with-like-denominators-flash-cards/>

<http://www.ixl.com/math/grade-4> Add and subtract fractions with like denominators, R.12

<https://www.illustrativemathematics.org/4.NF.B.3> (Scroll down to tasks for 4.NF.B.3.c)

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.3d** 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.

#### **Background knowledge needed**

Understanding key vocabulary clues, such as sum (to add), difference (to subtract)

Understanding how to add and subtract fractions with like denominators

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Fraction Word Problems**

#### **Print resources**

**NOTE:** Though several of the books have fraction word problems, the problems largely deal with fractions having unlike denominators, requiring the student to find the lowest common denominator first. That standard is not covered in Level C (Low Intermediate ABE).

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.3d>

<https://learnzillion.com/lessonsets/517-solve-word-problems-involving-addition-and-subtraction-of-fractions-with-like-denominators>

<https://quizlet.com/73903131/math-word-problem-vocabulary-flash-cards/> (best used for students needing to learn word problem vocabulary)

<http://www.ixl.com/math/grade-4> Add and subtract with like denominators, R.9

<https://www.illustrativemathematics.org/4.NF.B.3> (Scroll down to tasks for 4.NF.3.d)

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.**

#### **Background knowledge needed**

Understanding of the multiplication tables through  $12 \times 12$

Understanding that a whole number can be written as a fraction with a denominator of 1 (e.g.,  $7 = 7/1$ )

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Multiplying Fractions (use the second video lesson)**

**Fraction Math (Change settings to multiplication, and allow whole numbers)**

#### **Print resources**

**None of the print resources commonly used separates the multiplication of a fraction by a whole number.**

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.4>

<https://learnzillion.com/lessonsets/478-understand-multiplication-of-fractions-by-whole-numbers>

<https://quizlet.com/75787915/multiplying-fractions-by-a-whole-number-flash-cards/>

<http://www.ixl.com/math/grade-4> Multiply fractions, T.5, T.7, T.8, and T.10

<https://www.illustrativemathematics.org/4.NF.B.4>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.4a** 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  $5 \times 1/4$ , recording the conclusion by the equation  $5/4 = 5(1/4)$ .

#### **Background knowledge needed**

Understanding the definitions of *multiple* and *unit fraction*

#### **iPad resources**

**NONE**

#### **Print resources**

**None of the print resources commonly used identifies a fraction as a multiple of a unit fraction.**

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.4a>

<https://learnzillion.com/lessonsets/293-understand-a-fraction-a-b-as-a-multiple-of-1-b-and-solve-word-problems-involving-multiplication-of-a-fraction-by-a-whole-number>

<https://quizlet.com/56844815/5th-grade-common-core-5nf4-flash-cards/>

<http://www.ixl.com/math/grade-4> Multiply fractions, T.3

<https://www.illustrativemathematics.org/4.NF.B.4>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.**

**Standard 4.NF.4b** 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  $3 \times (2/5)$  as  $6 \times (1/5)$ , recognizing this product as  $6/5$ .

(In general,  $n \times (a/b) = (n \times a)/b$ .)

#### **Background knowledge needed**

Understanding of numerator and denominator

Understanding of unit fraction

Understanding that a whole number can be written as a fraction with a denominator of 1, e.g.,  $7 = 7/1$ .

#### **iPad resources**

**Fraction Math (Change settings to multiplication and allow whole numbers)**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Multiplying Fractions (use the second video lesson)**

#### **Print resources**

**None of the print resources commonly used specifically addresses this standard.**

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.4b>

<https://learnzillion.com/lessonsets/478-understand-multiplication-of-fractions-by-whole-numbers>

<https://quizlet.com/56844815/5th-grade-common-core-5nf4-flash-cards/>

<http://www.ixl.com/math/grade-4> Multiply fractions, T.3

<https://www.illustrativemathematics.org/4.NF.B.4>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.

**Standard 4.NF.4c** 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.

#### **Background knowledge needed**

Understanding the vocabulary needed to indicate multiplication (factors, product)

#### **iPad resources**

**NONE**

#### **Print resources**

**None of the print resources commonly used specifically addresses this standard.**

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.B.4c>

<https://learnzillion.com/lessonsets/429-solve-word-problems-involving-multiplication-of-fractions-by-whole-numbers>

<https://quizlet.com/59933627/common-core-fractions-2-and-3-flash-cards/>

<http://www.ixl.com/math/grade-4> Multiply fractions, T.6

<https://www.illustrativemathematics.org/content-standards/4/NF/B/4/tasks/857>



## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

**Understand decimal notation for fractions, and compare decimal fractions.**

**Standard 4.NF.6** Use decimal notation for fractions with denominators 10 or 100. For example, write 0.62 as  $\frac{62}{100}$ ; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

#### **Background knowledge needed**

Understanding place value to the hundredths place

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Fractions to Decimals (use the first video lesson)**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, p. 123
2. Steck-Vaughn GED Mathematics (the red book), has some exercises on pp. 120 – 121 (use only the ones for tenths and hundredths)
3. Common Core Basics Mathematics intermingles fractions, decimals, and percents, as do most print resources

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.C.6>

<https://learnzillion.com/lessonsets/292-use-decimal-notation-for-fractions-with-denominators-10-or-100>

<https://quizlet.com/48872256/denominator-of-10-fractions-and-decimals-flash-cards/>

<http://www.ixl.com/math/grade-4> Fraction equivalence and ordering, Q.6 very loosely correlates with this standard

<https://www.illustrativemathematics.org/content-standards/4/NF/C/6>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

Understand decimal notation for fractions, and compare decimal fractions.

**Standard 4.NF.7** 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.

#### **Background knowledge needed**

Understanding of the concept of place value

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 4: Decimals >> Comparing Decimals

MathPro!!! >> Grade 5 Math, Objective 2: Numbers and Number Sense >> Chapter 5

**NOTE:** These apps, like the print resources below, have examples that go beyond the hundredths place.

#### **Print resources**

**NOTE:** The print resources below have examples that go beyond the hundredths place.

1. Steck-Vaughn Access Mathematics, pp. 124 – 125 (the section on comparing decimals)
2. Steck-Vaughn GED Mathematics, pp. 106 – 107 (the section on comparing decimals)
3. Common Core Basics Mathematics has a brief mention of comparing decimals on p. 51; Common Core Achieve Mathematics has a few examples on p. 16.
4. Kaplan Big Book: Decimals and Fractions, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-NF#4.NF.C.7>

<https://learnzillion.com/lessonsets/672-compare-two-decimals-to-hundredths>

<https://quizlet.com/54719866/comparing-decimals-to-hundredths-flash-cards/>

<http://www.ixl.com/math/grade-4> Decimals, U.13 , U.14, and U.15

<https://www.illustrativemathematics.org/content-standards/4/NF/C/7>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

Use equivalent fractions as strategy to add and subtract fractions.

**Standard 5.NF.1** 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,  $a/b + c/d = (ad + bc)/bd$ .)

#### **Background knowledge needed**

Understanding how to add and subtract fractions with like denominators; also, how to add and subtract mixed numbers with like denominators

Understanding equivalent fractions

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Adding & Subtracting Unlike Fractions; also, Adding Mixed Numbers; also, Subtracting Mixed Numbers**

**Fraction math (Change settings to addition and subtraction, and allow mixed numbers. Turn off multiplication, division, only same denominators, allow whole numbers, allow negative numbers, and allow big numbers (> 12).)**

**MathPro!!! >> Grade 6 Math, Objective 6: Combining Fractions >> Chapters 1 - 4**

#### **Print resources**

1. TABE Fundamentals, Level M, Lessons 12 and 13; Level D, Lessons 8 and 9
2. Steck-Vaughn Access Mathematics, Unit 2, Lesson 6
3. Steck-Vaughn GED Mathematics, Unit 1, Lesson 7 (addition and subtraction sections only)
4. Common Core Basics Mathematics, Lesson 3.2
5. Kaplan Big Book: Decimals and Fractions, Lesson 4 (addition and subtraction sections only)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.A.1>

<https://learnzillion.com/lessonsets/216-add-and-subtract-fractions-with-unlike-denominators>

<https://learnzillion.com/lessonsets/383-add-and-subtract-fractions-and-mixed-numbers-with-unlike-denominators-using-area-models>

<https://learnzillion.com/lessonsets/536-add-and-subtract-fractions-and-mixed-numbers-with-unlike-denominators-using-fraction-bars>

<https://quizlet.com/43492133/add-and-subtract-fractions-with-unlike-denominators-flash-cards/>

<http://www.ixl.com/math/grade-5> Add and subtract fractions, M.8, M.9, and M.10

<https://www.illustrativemathematics.org/content-standards/5/NF/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

Use equivalent fractions as strategy to add and subtract fractions.

**Standard 5.NF.2** 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  $3/7 < 1/2$ .

#### Background knowledge needed

Understanding addition and subtraction of fractions with unlike denominators

Understanding comparison of fractions

#### iPad resources

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Fraction Word Problems (This app will assist in determining number sense of fractions, but it will not provide practice in solving word problems that require addition and subtraction of fractions.)**

#### Print resources

**NOTE: Print resources do not address this standard specifically.**

1. Steck-Vaughn Access Mathematics, pp. 87 and 89
2. Steck-Vaughn GED Mathematics (the red book), pp. 89 and 91
3. Common Core Basics Mathematics, Lesson 3.2 (a few problems are on p. 87)
4. Kaplan Big Book: Decimals and Fractions, Lesson 4 (pp. 248 – 249 only)

#### Workforce resources

1. McGraw-Hill Workforce Career Companions (all titles),

#### Online resources

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.A.2>

<https://learnzillion.com/lessonsets/219-solve-word-problems-involving-addition-and-subtraction-of-fractions-referring-to-the-same-whole-1>

<https://quizlet.com/59933627/common-core-fractions-2-and-3-flash-cards/>

<http://www.ixl.com/math/grade-5> Add and subtract fractions, M.11 and M.20

<https://www.illustrativemathematics.org/content-standards/5/NF/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.3** 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.

#### **Background knowledge needed**

Understanding multiplication and division facts

Understanding the terms *numerator*, *denominator*, *dividend*, *divisor*, and *quotient*

#### **iPad resources**

**Division app (Change settings to allow remainders; set digits in divisor and dividend to 1)**

#### **Print resources**

**NOTE: Print resources do not directly address this standard.**

1. Steck-Vaughn GED Mathematics (the red book), very loosely addresses this standard in Unit 1, Lesson 5.

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.3>

<https://learnzillion.com/lessonsets/217-interpret-fractions-as-division-and-solving-word-problems-involving-division-of-whole-numbers-resulting-in-fraction-answers>

<https://learnzillion.com/lessonsets/732-interpret-a-fraction-as-division-and-answer-division-problems-using-fractions>

<http://www.ixl.com/math/grade-5> Division, H.5

<https://www.illustrativemathematics.org/content-standards/5/NF/B/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

#### **Background knowledge needed**

Understanding that a whole number can be written as a fraction, such as  $7 = 7/1$ .

Understanding multiplication facts

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Multiplying Fractions**

**Fractions Math app (Change settings to multiplication only; allow whole numbers, but turn off other settings.)**

#### **Print resources**

1. TABE Fundamentals Math Computation, Level M, Lesson 14; Level D, Lesson 10
2. Building Skills with TABE, Level M, pp. 46 – 47
3. Steck-Vaughn Access Mathematics, Lesson 7 (focus only on multiplying fractions, not multiplying mixed numbers)
4. Steck-Vaughn GED Mathematics (the red book), pp. 92 – 93 (focus only on multiplying fractions, not multiplying mixed numbers)
5. Common Core Basics Mathematics, Lesson 3.3 (focus only on multiplying fractions, not dividing fractions)
6. Kaplan Big Book: Decimals and Fractions, Lesson 4 (focus only on multiplying fractions, not multiplying mixed numbers or dividing fractions)

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.4>

<https://learnzillion.com/lessonsets/66-multiply-fractions>

<https://quizlet.com/57808550/multiply-fractions-flash-cards/>

<http://www.ixl.com/math/grade-5> Multiply fractions, N.5, N.8, and N.15

<https://www.illustrativemathematics.org/content-standards/5/NF/B/4>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.5** 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.

#### **Background knowledge needed**

Understanding the multiplicative property of 1:  $a \times 1 = a$

Understanding that  $a/a = 1$ , as long as  $a \neq 0$

#### **iPad resources**

NONE

#### **Print resources**

None of the usual print resources addresses the concept of scaling.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.5>

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.5a>

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.5b>

<https://learnzillion.com/lessonsets/387-interpret-multiplication-as-scaling>

<https://learnzillion.com/lessonsets/537-interpret-multiplication-as-scaling-and-predict-the-outcome-of-multiplying-by-fractions-less-than-greater-than-and-equal-to-one>

<http://www.ixl.com/math/grade-5> Multiply fractions, N.17 and N.18

<https://www.illustrativemathematics.org/5.NF.B.5>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.6** Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

#### **Background knowledge needed**

Understanding the concept of translating from words to symbols: "of" means to multiply, etc.

Understanding how to multiply fractions and mixed numbers

#### **iPad resources**

**MathPro!!! >> Grade 6 Math, Objective 6: Combining Fractions >> Chapter 8**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, Lesson 7
2. Steck-Vaughn GED Mathematics (the red book), Unit 1, Lesson 7, pp. 92 -93
3. Common Core Basics Mathematics, Lessons 3.3 and 3.4 have some fraction and mixed number word problems scattered within the lessons (among the other operations)
4. Kaplan Big Book: Decimals and Fractions, Lesson 4 has some multiplication problems (mixed in with division problems) on pp. 250 – 251

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 78 - 79

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.6>

<https://learnzillion.com/lessonsets/538-solve-problems-involving-multiplication-of-fractions-and-mixed-numbers>

<https://quizlet.com/69639699/multiplying-fraction-word-problems-flash-cards/>

<http://www.ixl.com/math/grade-5> Multiply fractions, N.10, N.27, and N.28

<https://www.illustrativemathematics.org/content-standards/5/NF/B/6>



## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.7** Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

#### **Background knowledge needed**

Understanding the vocabulary: *numerator, denominator, reciprocal*

Understanding that division of fractions is defined by multiplying the first fraction by the reciprocal of the second fraction

#### **iPad resources**

NONE

#### **Print resources**

None of the usual print resources specifically addresses this standard (involving unit fractions).

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.7>

<https://learnzillion.com/lessonsets/737-divide-whole-numbers-by-unit-fractions-and-unit-fractions-by-whole-numbers>

<https://quizlet.com/15999289/how-to-divide-a-fraction-by-a-whole-number-flash-cards/>

<https://quizlet.com/38685738/whole-numbers-divided-by-common-fractions-flash-cards/> (loosely addresses the standard)

<http://www.ixl.com/math/grade-5> Multiply fractions O.1, O.2, O.3, and O.4

<https://www.illustrativemathematics.org/5.NF.B.7>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.7a** Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for  $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $(1/3) \div 4 = 1/12$  because  $(1/12) \times 4 = 1/3$ .

#### Background knowledge needed

Understanding the vocabulary: *numerator, denominator, reciprocal*

Understanding that division of fractions is defined by multiplying the first fraction by the reciprocal of the second fraction

#### iPad resources

NONE

#### Print resources

None of the usual print resources specifically addresses this standard.

#### Online resources

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.7a>

<https://learnzillion.com/lessonsets/737-divide-whole-numbers-by-unit-fractions-and-unit-fractions-by-whole-numbers>

<http://www.ixl.com/math/grade-5> Divide fractions, O.1, O.4, and O.5

<https://www.illustrativemathematics.org/content-standards/5/NF/B/7/tasks/957>

## CCR Level 3 Math (Low Intermediate ABE)

### Numbers and Operations: Fractions

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

**Standard 5.NF.7b** Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ .

#### **Background knowledge needed**

Understanding the vocabulary: *numerator, denominator, reciprocal, unit fraction*

#### **iPad resources**

NONE

#### **Print resources**

None of the usual print resources addresses this standard.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.7b>

<https://learnzillion.com/lessonsets/183-interpret-and-compute-division-of-whole-numbers-by-unit-fractions>

<http://www.ixl.com/math/grade-5> Divide fractions, O.2, O.3, O.7 and O.8

<https://www.illustrativemathematics.org/5.NF.B.7> (Scroll down to 5.NF.b.7.b)

CCR Level 3 Math (Low Intermediate ABE)

Numbers and Operations: Fractions

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

**Standard 5.NF.7c** 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.

**Background knowledge needed**

Understanding the vocabulary: *numerator, denominator, reciprocal, unit fraction*

**iPad resources**

NONE

**Print resources**

None of the usual print resources addresses this standard.

**Online resources**

<https://www.khanacademy.org/commoncore/grade-5-NF#5.NF.B.7c>

<https://learnzillion.com/lessonsets/737-divide-whole-numbers-by-unit-fractions-and-unit-fractions-by-whole-numbers>

<http://www.ixl.com/math/grade-5> Divide fractions, O.6

<https://www.illustrativemathematics.org/5.NF.B.7> (Scroll down to 5.NF.b.7.c)

## CCR Level 3 Math (Low Intermediate ABE)

### The Number System

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

**Standard N.6.1** 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  $(2/3) \div (3/4)$ , and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that  $(2/3) \div (3/4) = 8/9$  because  $3/4$  of  $8/9$  is  $2/3$ . (In general  $(a/b) \div (c/d) = ad/bc$ )

#### Background knowledge needed

Understanding multiplication tables and division facts

Understanding the vocabulary: *numerator, denominator, reciprocal*

#### iPad resources

Maths app >> Pre-Algebra >> Chapter 3: Fractions >> Dividing Fractions; also, Dividing Mixed Numbers

Fraction Math app (Change settings to division; turn off all other settings)

#### Print resources

1. Steck-Vaughn Access Mathematics, pp. 102 – 105
2. Steck-Vaughn GED Mathematics, pp. 94 – 95
3. Common Core Basics Mathematics, Lesson 3.3
4. Kaplan Big Book: Decimals and Fractions, Lesson 4, pp. 250 – 251

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-NS#6.NS.A.1>

<https://learnzillion.com/lessonsets/701-interpret-and-compute-quotients-of-fractions>

<https://learnzillion.com/lessonsets/288-solve-word-problems-involving-division-of-fractions>

<https://quizlet.com/38685655/divide-fractions-flash-cards/>

<http://www.ixl.com/math/grade-6> Divide fractions, W.5, W.7, and W.8

<https://www.illustrativemathematics.org/6.NS.A.1>

## CCR Level 3 Math (Low Intermediate ABE)

### Ratios and Proportional Relationships

Understand ratio concepts and use ratio reasoning to solve problems.

**Standard 6.RP.1** 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."

#### **Background knowledge needed**

Understanding the concept of a fraction as a "part" (the numerator) over the "whole" (denominator)

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 6: Ratio, Proportion, & Percent >> Intro to ratios

#### **Print resources**

1. Steck-Vaughn Access Mathematics, Unit 4, Lesson 11
2. Steck-Vaughn GED Mathematics (the red book), pp. 82 – 83
3. Common Core Basics Mathematics, Lesson 7.1
4. Kaplan Big Book: Ratio, Proportion, and Percent, Lesson 1 (pp. 262 – 263)
5. Common Core Achieve Mathematics, Lesson 2.1

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 84 - 85

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-RP#6.RP.A.1>

<https://learnzillion.com/lessonsets/133-understand-ratios-and-using-ratio-language-to-describe-a-ratio-relationship-1>

<https://quizlet.com/49788090/ratios-flash-cards/>

<http://www.ixl.com/math/grade-6> Ratios, proportions, and percents, AA.1

<https://www.illustrativemathematics.org/content-standards/6/RP/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Ratios and Proportional Relationships

Understand ratio concepts and use ratio reasoning to solve problems.

**Standard 6.RP.2** 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  $\frac{3}{4}$  cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."

#### Background knowledge needed

Understanding the definition of *ratio*

#### iPad resources

Math apps >> Pre-Algebra >> Chapter 6: Ratio, Proportion, & Percent >> Unit Rate; also, Unit Price

#### Print resources

1. Steck-Vaughn Access Mathematics, Unit 4, Lesson 11
2. Steck-Vaughn GED Mathematics, pp. 82 – 83
3. Common Core Basics Mathematics, Lesson 7.1 (p. 215)
4. Common Core Achieve Mathematics, Lesson 2.1
5. Steck-Vaughn Mathematical Reasoning, Unit 1, Lesson 5

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-RP#6.RP.A.2>

<https://learnzillion.com/lessonsets/152-understand-unit-rate-and-use-rate-language-in-the-context-of-a-ratio-relationship>

<https://quizlet.com/53910151/rates-and-unit-rates-flash-cards/>

<http://www.ixl.com/math/grade-6> Ratios, Proportions and Percents, AA.8

<https://www.illustrativemathematics.org/content-standards/6/RP/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

Use the four operations with whole numbers to solve problems.

**Standard 4.OA.1** Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  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.

#### **Background knowledge needed**

Understanding that multiplication is repeated addition

Understanding rates of comparison (i.e., twice as many, three times as many, etc.)

#### **iPad resources**

**NONE**

#### **Print resources**

**None of the usual print resources addresses this standard.**

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 84 - 87

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-OA#4.OA.A.1>

<https://learnzillion.com/lessonsets/539-interpret-multiplication-as-a-comparison>

<https://www.illustrativemathematics.org/content-standards/4/OA/A/1>

[http://www.helpingwithmath.com/printables/worksheets/equations\\_expressions/4oa1comparison01.htm](http://www.helpingwithmath.com/printables/worksheets/equations_expressions/4oa1comparison01.htm)

[http://www.helpingwithmath.com/by\\_subject/equations\\_expressions/equ\\_comparison01\\_4oa1.htm](http://www.helpingwithmath.com/by_subject/equations_expressions/equ_comparison01_4oa1.htm)

<https://grade4commoncoremath.wikispaces.hcps.org/4.OA.1>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4oa1>



## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

Use the four operations with whole numbers to solve problems.

**Standard 4.OA.2** 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.

#### **Background knowledge needed**

Understanding the concept of multiplication as repeated addition

Understanding the concept of using a symbol to represent an unknown number

#### **iPad resources**

**NONE**

#### **Print resources**

**None of the usual print resources addresses this standard specifically.**

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-OA#4.OA.A.2>

<https://learnzillion.com/lessonsets/615-solve-word-problems-using-multiplicative-comparisons>

<http://www.ixl.com/math/grade-3> Multiplication E.1

<https://www.illustrativemathematics.org/content-standards/4/OA/A/2>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4oa2>

## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

Use the four operations with whole numbers to solve problems.

**Standard 4.OA.3** 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.

#### **Background knowledge needed**

Understanding the use of the four operations

Understanding how to translate words into symbols, including key words such as *increased by*, *more than*, *less than*, *fewer than*, *times as much*, etc.

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Addition & Subtraction Word Problems; also, Multiplication and Division Word Problems**

**Note: This app gives practice working with whole-number word problems, but not necessarily with multistep word problems.**

#### **Print resources**

**Note: These print resources give practice working with whole-number word problems, but not necessarily with multistep word problems.**

1. Steck-Vaughn Access Mathematics, Unit 1, Lessons 2 and 3
2. Steck-Vaughn GED Mathematics (the red book), Unit 1, Lessons 3 and 4
3. Common Core Basics Mathematics, Lesson 1.7
4. Kaplan Big Book: Number Sense and Problem Solving, Lesson 4
5. Steck-Vaughn Mathematical Reasoning, Unit 1, Lesson 1

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 76 - 77

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-OA#4.OA.A.3>

<https://learnzillion.com/lessonsets/415-solve-multi-step-word-problems-using-the-four-operations>

<https://quizlet.com/20014210/addition-word-problems-whole-numbers-flash-cards/>

<https://quizlet.com/20023160/division-word-problems-whole-numbers-flash-cards/>

<https://quizlet.com/20023897/multidivide-word-problems-whole-number-flash-cards/>

<http://www.ixl.com/math/grade-4> Mixed operations, F.4, F.5, and F.6

<https://www.illustrativemathematics.org/content-standards/4/OA/A/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

Gain familiarity with factors and multiples.

**Standard 4.OA.4** 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.

#### Background knowledge needed

Understanding the vocabulary: *factor, multiple, prime, and composite*

#### iPad resources

**MathPro!!! >> Grade 5 Math, Objective 3: Divisibility Rules >> Chapters 1 - 5**

#### Print resources

1. Common Core Basics Mathematics, Lesson 1.4 (deals only with factors)
2. Common Core Achieve Mathematics, Lesson 1.2 (factors and multiples)

#### Online resources

<https://www.khanacademy.org/commoncore/grade-4-OA#4.OA.B.4>

<https://learnzillion.com/lessonsets/123-find-and-understand-factors-and-determine-if-a-number-is-a-multiple-of-a-given-number-for-whole-numbers-0-100>

<https://quizlet.com/19821179/prime-and-composite-numbers-1-100-flash-cards/>

<http://www.ixl.com/math/grade-4> Number sense, A.5 (prime and composite numbers)

<http://www.ixl.com/math/grade-3> Multiplication, E.4 (missing factors);  
Multiplication – skill builders, F.1 – F.11

<https://www.illustrativemathematics.org/content-standards/4/OA/B/4>

## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

#### Generate and analyze patterns.

**Standard 4.OA.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the patterns 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 this way.

#### Background knowledge needed

Following directions and drawing conclusions

#### iPad resources

Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Patterns with Whole numbers; also, Advanced Patterns

MathPro!!! >> Grade 5 Math, Objective 9: Patterns, Functions, and Algebra >> Chapters 1 - 4

#### Print resources

1. Steck-Vaughn GED Mathematics (the red book), pp. 240 – 241 (use patterns that are not algebraic in nature)

#### Online resources

<https://www.khanacademy.org/commoncore/grade-4-OA#4.OA.C.5>

<https://learnzillion.com/lessonsets/195-generate-number-or-shape-patterns-that-follow-a-given-rule-and-identifying-pattern-features>

<http://www.ixl.com/math/grade-4> Addition, B.6; Subtraction, C.4; Multiplication, D.8; Division, E.16

<https://www.illustrativemathematics.org/content-standards/4/OA/C/5>

[http://mrnussbaum.com/grade\\_4\\_standards/patterns/](http://mrnussbaum.com/grade_4_standards/patterns/)

## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

Write and interpret numerical expressions.

**Standard 5.OA.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

#### **Background knowledge needed**

Understanding the order of operations, PEMDAS ("Please Excuse My Dear Aunt Sally"): work within parentheses first, then exponents, then multiply or divide as you move left to right, and then add or subtract as you move left to right

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Order of Operations; also, Grouping Symbols**

**MathPro!!! >> Grade 5 Math, Objective 11: Order of Operations >> Chapters 1 – 2**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, pp. 134 – 135
2. Steck-Vaughn GED Mathematics (the red book), pp. 58 – 59
3. Common Core Basics Mathematics, Lesson 1.6
4. Common Core Achieve Mathematics, Lesson 1.2 (pp. 24 – 25)

NOTE: Kaplan Big Book and Steck-Vaughn Mathematical Reasoning also cover the order of operations, but they include negative integers as well as whole numbers.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-OA#5.OA.A.1>

<https://learnzillion.com/lessonsets/461-use-parentheses-brackets-or-braces-in-numerical-expressions>

<https://learnzillion.com/lessonsets/546-use-parentheses-and-interpret-and-evaluate-expressions-with-parentheses>

<https://quizlet.com/69629526/the-order-of-operations-1-flash-cards/>

<http://www.ixl.com/math/grade-5> Algebra, Q.1

<https://www.illustrativemathematics.org/content-standards/5/OA/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Operations and Algebraic Thinking

Write and interpret numerical expressions.

**Standard 5.OA.2** 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  $2 \times (8 + 7)$ . Recognize that  $3 \times (2100 + 425)$  is three times as large as the sum  $2100 + 425$ , without having to calculate the indicate sum or product.

#### Background knowledge needed

Understanding the basic vocabulary of operations: *add, sum, subtract, difference, multiply, product, divide, quotient* and being able to translate the vocabulary into symbols

#### iPad resources

**MathPro!!! >> Grade 5 Math, Objective 9: Patterns, Functions, and Algebra >> Chapters 5 and 6**

#### Print resources

1. Steck-Vaughn Access Mathematics, pp. 134 – 135
2. Steck-Vaughn GED Mathematics (the red book), pp. 58 – 59
3. Common Core Basics Mathematics, Lesson 1.6
4. Common Core Achieve Mathematics, Lesson 1.2 (pp. 24 – 25)

#### Online resources

<https://www.khanacademy.org/commoncore/grade-5-OA#5.OA.A.2>

<https://learnzillion.com/lessonsets/614-write-and-interpret-expressions>

<https://learnzillion.com/lessonsets/648-write-interpret-describe-and-reason-about-expressions>

<https://quizlet.com/59073668/writing-numerical-expressions-flash-cards/>

<https://www.illustrativemathematics.org/content-standards/5/OA/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.EE.1** Write and evaluate numerical expressions involving whole-number exponents.

#### **Background knowledge needed**

Understanding the vocabulary: *base, exponent*

Understanding that using an exponent is a short-hand way of writing extended multiplication of the same base

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 1: Whole Numbers >> Exponents**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, Unit 1, Lesson 4 (focus only on exponents, not on square roots)
2. Steck-Vaughn GED Mathematics (the red book), Unit 3, Lesson 20 (omit problems with negative exponents)
3. Common Core Basics Mathematics, Lesson 8.1
4. Kaplan Big Book: Algebra Basics, Expressions, and Polynomials, Lesson 2 (focus only on problems having whole-number exponents)
5. Common Core Achieve Mathematics, Lesson 1.3 (focus only on Defining Powers; omit negative exponents)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.1>

<https://learnzillion.com/lessonsets/196-write-and-evaluate-expressions-involving-whole-number-exponents>

<https://quizlet.com/29335740/order-of-operations-with-exponents-flash-cards/>

<http://www.ixl.com/math/grade-6> Exponents and square roots, E.1 and E.2

<https://www.illustrativemathematics.org/content-standards/6/EE/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.EE.2** Write, read, and evaluate expressions in which letters stand for numbers.

#### **Background knowledge needed**

Understanding and using the order of operations

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Evaluating Expressions**

**MathPro!!! >> Grade 8 Math, Objective 4: Order of Operations >> Chapters 1 & 5**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), pp. 214 – 215
2. Common Core Basics Mathematics, Lesson 5.1
3. Kaplan Big Book: Algebra Basics, Expressions, and Polynomials, Lesson 6
4. Common Core Achieve Mathematics, Lesson 3.1 (pp. 82 – 83, pp. 86 – 87)
5. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.2>

<https://learnzillion.com/lessonsets/69-read-write-and-evaluate-algebraic-expressions>

<https://quizlet.com/31536120/evaluating-expressions-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.1 and P.2

<https://www.illustrativemathematics.org/content-standards/6/EE/A/2>



## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.EE.2a** Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract  $y$  from 5" as  $5 - y$ .

#### **Background knowledge needed**

Understanding key vocabulary and how to translate from words to symbols

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Modeling Expressions

MathPro!!! >> Grade 5 Math, Objective 9: Patterns, Functions, and Algebra >> Chapters 5 and 6; also, Grade 7 Math, Objective 20: Verbal Expressions and Equations >> Chapters 1 - 9

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), pp. 214 – 215
2. Common Core Basics Mathematics, Lesson 5.1
3. Kaplan Big Book: Algebra Basics, Expressions, and Polynomials, Lesson 6
4. Common Core Achieve Mathematics, Lesson 3.1 (pp. 82 – 83, pp. 86 – 87)
5. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.2a>

<https://learnzillion.com/lessonsets/69-read-write-and-evaluate-algebraic-expressions>

<https://learnzillion.com/lessonsets/198-write-read-and-evaluate-expressions-in-which-letters-stand-for-numbers>

<https://quizlet.com/31536120/evaluating-expressions-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.1

<https://www.illustrativemathematics.org/6.EE.A.2>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.EE.2b** 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.

#### Background knowledge needed

Understanding the vocabulary: *sum, term, product, factor, quotient, coefficient*

#### iPad resources

MathPro!!! >> Algebra 1, Part 1, Objective 17: Exponents >> Chapter 1

#### Print resources

None of the usual print resources specifically addresses these standards; however, Common Core Basics, Lesson 5.1 identifies some of the terms.

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.2b>

<https://learnzillion.com/lessonsets/198-write-read-and-evaluate-expressions-in-which-letters-stand-for-numbers>

<https://quizlet.com/35289313/identifying-parts-of-an-algebraic-expression-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.16

<https://www.illustrativemathematics.org/6.EE.A.2>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.E.2c** 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  $A = S^2$  to find the volume and surface area of a cube with sides of length  $s = \frac{1}{2}$ .

#### **Background knowledge needed**

Substituting given numbers for variables

Following the order of operations (PEMDAS)

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Evaluating Expressions

Maths app >> Geometry >> Chapter 9: Area >> Area of Rectangles & Squares, Parts 1 and 2; Area of a Parallelogram; Area of a Triangle; Area of a Rhombus; Area of a Trapezoid; Area of a Circle

MathPro!!! >> Pre-Algebra, Objective 9: Substitution with Values >> Chapters 1 and 5

#### **Print resources**

1. McDougal Littell Algebra 1, Lessons 1.1, 1.2, 1.3
1. Steck-Vaughn Access Mathematics, pp. 54 – 59
2. Steck-Vaughn GED Mathematics (the red book), pp. 172 – 173, 176 – 177, 274 – 276
3. Common Core Basics Mathematics, Lessons 5.1, 12.2, and 12.4
4. Kaplan Big Book: Geometry, Lessons 4, 5, and 6
5. Common Core Achieve Mathematics, Lessons 7.1, 7.2, and 7.3 (use the simplest formulas)  
NOTE: These problems may be too challenging at this level.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.2c>

<https://learnzillion.com/lessonsets/198-write-read-and-evaluate-expressions-in-which-letters-stand-for-numbers>

<https://quizlet.com/79060695/6ee2c-evaluating-expressions-using-the-order-of-operations-flash-cards/>

<http://www.ixl.com/math/grade-6> Geometry, Z.22 and Z.23

<https://www.illustrativemathematics.org/6.EE.A.2>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.EE.3** 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  $3y$ .

#### Background knowledge needed

Understanding the use of the distributive property, including factoring out the GCF

Understanding the concept of “like” terms

#### iPad resources

**Maths app >> Algebra 1 >> Chapter 1: Simplifying >> Combining Like Terms; also, Distributive Property; also, Simplifying Expressions**

**MathPro!!! >> Pre-Algebra, Objective 5: Properties >> Chapters 1 - 8**

#### Print resources

1. Steck-Vaughn GED Mathematics (the red book), pp. 216 – 217
2. Common Core Basics Mathematics, Lesson 1.4
3. Kaplan Big Book: Algebra Basics, Expressions, and Polynomials, Lesson 6 (specifically, pp. 328 – 329)
4. Common Core Achieve, Lesson 4.1 (this lesson may be too challenging at this level)

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.3>

<https://learnzillion.com/lessonsets/237-apply-properties-of-operations-to-generate-equivalent-expressions>

<https://learnzillion.com/lessonsets/480-apply-properties-of-operations-to-generate-equivalent-expressions>

<https://learnzillion.com/lessonsets/567-apply-properties-of-operations-to-generate-equivalent-expressions>

<https://quizlet.com/67786613/definitions-and-properties-of-operations-on-the-real-numbers-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.17, P.18, and P.19

<https://www.illustrativemathematics.org/content-standards/6/EE/A/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

**Standard 6.EE.4** 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.

#### Background knowledge needed

Understanding how to combine like terms

#### iPad resources

Maths app >> Algebra 1 >> Chapter 1: Simplifying >> Combining Like Terms; also, Distributive Property; also, Simplifying Expressions

MathPro!!! >> Algebra 1, Part 1, Objective 18: Monomials >> Chapters 1 and 2

#### Print resources

**NOTE: The print resources do not specifically address this standard.**

1. Steck-Vaughn GED Mathematics (the red book), pp. 216 – 217
2. Common Core Basics Mathematics, Lesson 1.4
3. Kaplan Big Book: Algebra Basics, Expressions, and Polynomials, Lesson 6 (specifically, pp. 328 – 329)
4. Common Core Achieve, Lesson 4.1 (this lesson may be too challenging at this level)

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.A.4>

<https://learnzillion.com/lessonsets/238-identify-when-two-expressions-are-equivalent>

<https://quizlet.com/66382558/equivalent-expressions-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.17 and P.18

<https://www.illustrativemathematics.org/content-standards/6/EE/A/4>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Reason about and solve one-variable equations and inequalities.

**Standard 6.EE.5** 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.

#### **Background knowledge needed**

Substituting for a variable

Using the order of operations and properties of operations to simplify

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Intro to Equations

MathPro!!! >> Pre-Algebra, Objective 9: Substitution with Values >> Chapters 2 - 4

#### **Print resources**

1. McDougal Littell Algebra 1, Lesson 1.4

2. Common Core Basics Mathematics, Lesson 5.2 (Example 2: Check for Solutions)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.B.5>

<https://learnzillion.com/lessonsets/527-understand-solving-an-equation-or-inequality-as-finding-values-that-make-the-statement-true-use-substitution-to-evaluate-values>

<https://quizlet.com/24908256/chapter-2-number-expressions-equations-properties-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.5

<https://www.illustrativemathematics.org/content-standards/6/EE/B/5>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Reason about and solve one-variable equations and inequalities.

**Standard 6.EE.6** 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.

#### **Background knowledge needed**

Translating from words into symbols

Understanding the concept of a variable

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Modeling Expressions**

#### **Print resources**

1. McDougal Littell Algebra 1, Lesson 1.5
2. Steck-Vaughn Access Mathematics, pp. 42 – 43 (focus on Writing Equations)
3. Common Core Basics Mathematics, Lesson 5.1
4. Common Core Achieve Mathematics, Lesson 3.1
5. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 2

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.B.6>

<https://learnzillion.com/lessonsets/556-understand-that-variables-represent-unknown-numbers-and-use-variables-to-solve-problems>

<https://quizlet.com/55406652/pre-algebra-terms-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.1

<https://www.illustrativemathematics.org/content-standards/6/EE/B/6>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Reason about and solve one-variable equations and inequalities.

**Standard 6.EE.7** 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.

#### **Background knowledge needed**

Understanding additive and multiplicative inverse properties

Being able to follow a procedure

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Addition Equations; also Subtraction Equations and Multiplication Equations (NOTE: Some of these examples may include negative rational numbers.)**

**MathPro!!! >> Grade 8 Math, Objective 22: Solving 1-step Equations and Inequalities >> Chapters 15 - 19**

#### **Print resources**

1. McDougal Littell Algebra 1, Lessons 3.1 and 3.2 (NOTE: Some of these examples may include negative rational numbers.)

2. Steck-Vaughn Access Mathematics, pp. 42 – 43

3. Steck-Vaughn GED Mathematics (the red book), Unit 3, Lesson 19 (Focus on solving one-step equations) (NOTE: Some of these examples may include negative rational numbers.)

4. Common Core Basics Mathematics, Lesson 5.2 (Omit "Solve a Division Equation" section)

5. Kaplan Big Book: Equations, Inequalities, and Functions, Lesson 1 (Omit examples with negative numbers and also omit division equations)

6. Common Core Achieve Mathematics, Lesson 3.2 (Focus on solving one-step equations)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.B.7>

<https://learnzillion.com/lessonsets/577-solve-problems-by-writing-and-solving-equations-of-the-form-x-p-q-and-px-q>

<https://quizlet.com/49864695/one-step-equations-addition-subtraction-flash-cards/>

<https://quizlet.com/62536828/one-step-equations-w-integers-multiplication-and-division-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.6 and P.7

<https://www.illustrativemathematics.org/content-standards/6/EE/B/7>



## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Reason about and solve one-variable equations and inequalities.

**Standard 6.EE.8** 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.

#### Background knowledge needed

Understanding the concept of the number line, with greater numbers moving to the right and smaller numbers to the left

Understanding that the number line represents an infinite line

#### iPad resources

Maths app >> Pre-Algebra >> Chapter 5: Algebraic Thinking >> Intro to Inequalities

#### Print resources

**NOTE: These lessons mostly cover solving inequalities and then graphing solutions on the number line. See online resources for lessons more closely aligned to this standard.**

1. Steck-Vaughn GED Mathematics (the red book), pp. 248 – 249
2. Common Core Basics Mathematics, Lesson 5.4
3. Kaplan Big Book: Equations, Inequalities, and Functions, Lesson 3
4. Common Core Achieve Mathematics, Lesson 3.3
5. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 10

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.B.8>

<https://learnzillion.com/lessonsets/310-writing-using-and-understanding-inequalities>

<https://learnzillion.com/lessonsets/578-understand-write-and-represent-inequalities-of-the-form-x-c-or-x-c-and-recognize-that-they-have-infinitely-many-solutions>

<https://quizlet.com/55834168/graph-inequalities-flash-cards/>

<http://www.ixl.com/math/grade-6> Algebra, P.22

<https://www.illustrativemathematics.org/content-standards/6/EE/B/8>

## CCR Level 3 Math (Low Intermediate ABE)

### Expressions and Equations

Reason about and solve one-variable equations and inequalities.

**Standard 6.EE.9** 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.

#### **Background knowledge needed**

Understanding graphing in the coordinate plane

#### **iPad resources**

NONE

#### **Print resources**

1. Common Core Basics Mathematics, Lesson 6.1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-EE#6.EE.C.9>

<https://learnzillion.com/lessonsets/675-use-variables-to-relate-two-quantities-in-a-real-world-problem>

<https://learnzillion.com/lessonsets/346-use-variables-to-represent-quantities-that-change-in-relationship-to-one-another>

<https://quizlet.com/68961282/klmsmath6-independent-dependant-variables-flash-cards/>

<https://www.illustrativemathematics.org/6.EE.C.9>

## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

**Standard 4.G.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

#### **Background knowledge needed**

NONE

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 7: Geometry >> Points, Lines, Segments, & Rays; also, Parallel, Perpendicular, Intersecting Lines; also, Intro to Angles

#### **Print resources**

1. Steck-Vaughn GED Mathematics, Unit 4, Lesson 24 partially aligns to this standard
2. Common Core Basics, Lesson 12.1 (Use the sections on Basic Geometric Terms and Angles)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-G#4.G.A.1>

<https://learnzillion.com/lessonsets/757-draw-points-lines-line-segments-rays-angles-and-perpendicular-and-parallel-lines>

<https://learnzillion.com/lessonsets/381-draw-and-identify-points-lines-rays-and-angles>

<https://quizlet.com/29617028/simple-plane-geometry-grade-4-flash-cards/>

<http://www.ixl.com/math/grade-4> Geometry, P.13 (angles only)

<https://www.illustrativemathematics.org/content-standards/4/G/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

Graph points on the coordinate plane to solve real-world and mathematical problems.

**Standard 5.G.1** 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).

#### **Background knowledge needed**

Understanding horizontal and vertical number lines

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 7: Geometry >> Coordinate Grid

MathPro!!! >> Pre-Algebra, Objective 15: Graphing Points >> Chapters 1 -6

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Unit 3, Lesson 22
2. Common Core Basics Mathematics, Lesson 4.5
3. Kaplan Big Book: Equations, Inequalities, and Functions, Lesson 6
4. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 11

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-G#5.G.A.1>

<https://learnzillion.com/lessonsets/347-understand-and-solve-problems-with-the-coordinate-plane>

<https://learnzillion.com/lessonsets/344-understand-and-plotting-points-on-coordinate-planes>

<https://quizlet.com/13128327/5th-grade-common-core-5g1-and-5g2-flash-cards/>

<http://www.ixl.com/math/grade-5> Coordinate graphs, R.1, R.3, R.4

<https://www.illustrativemathematics.org/content-standards/5/G/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

Graph points on the coordinate plane to solve real-world and mathematical problems.

**Standard 5.G.2** 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.

#### **Background knowledge needed**

Understanding that points  $(x,y)$  are graphed by first moving along the horizontal axis (x-axis) and then moving up the vertical axis (y-axis)

#### **iPad resources**

Maths app >> Pre-Algebra >> Chapter 7: Geometry >> Coordinate Grid

MathPro!!! >> Pre-Algebra, Objective 15: Graphing Points >> Chapters 1 -6

**Print resources (same as for standard 5.G.1) See online resources for lessons more closely aligned to this standard.**

1. Steck-Vaughn GED Mathematics (the red book), Unit 3, Lesson 22
2. Common Core Basics Mathematics, Lesson 4.5
3. Kaplan Big Book: Equations, Inequalities, and Functions, Lesson 6
4. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 11

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-G#5.G.A.2>

<https://learnzillion.com/lessonsets/344-understand-and-plotting-points-on-coordinate-planes>

<https://learnzillion.com/lessonsets/347-understand-and-solve-problems-with-the-coordinate-plane>

<https://quizlet.com/13128327/5th-grade-common-core-5g1-and-5g2-flash-cards/>

<http://www.ixl.com/math/grade-5> Coordinate graphs, R.3, R.4, R.5, and R.6

<https://www.illustrativemathematics.org/content-standards/5/G/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

**Classify two-dimensional figures into categories based on their properties.**

**Standard 5.G.3** 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.

#### **Background knowledge needed**

Understanding the vocabulary of polygons (sides, angles, parallel sides, etc.)

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 7: Geometry >> Quadrilaterals**

#### **Print resources**

1. Steck-Vaughn GED Mathematics, Unit 4, Lesson 25
2. Common Core Basics Mathematics, Lesson 12.1
3. Kaplan Big Book: Geometry, Lesson 1

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-G#5.G.B.3>

<https://learnzillion.com/lessonsets/666-understand-categories-and-subcategories-of-two-dimensional-figures>

<https://learnzillion.com/lessonsets/345-understand-attributes-of-two-dimensional-figures-and-classifying-figures-in-a-hierarchy>

<https://quizlet.com/13128609/5th-grade-common-core-5g3-and-5g4-flash-cards/>

<http://www.ixl.com/math/grade-5> Geometry, B.1, B.2, and B.3

<https://www.illustrativemathematics.org/content-standards/5/G/B/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

Solve real-world and mathematical problems involving area, surface area, and volume.

**Standard 6.G.1** 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.

#### **Background knowledge needed**

Being able to identify two-dimensional figures (triangles, quadrilaterals, and other polygons)

Being able to substitute given information into a formula and follow the order of operations to compute area

#### **iPad resources**

**Maths app >> Geometry >> Chapter 9: Area >> (all lessons)**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Unit 4, Lessons 23 and 26
2. Common Core Basics Mathematics, Lesson 12.4
3. Kaplan Big Book: Geometry, Lesson 4 (focus on area)
4. Common Core Achieve Mathematics, Lesson 7.1 (focus on area)
5. Steck-Vaughn Mathematical Reasoning, Unit 4, Lesson 1

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 82 - 83

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-G#6.G.A.1>

<https://learnzillion.com/lessonsets/148-find-the-area-of-triangles-quadrilaterals-and-polygons-by-composing-rectangles-or-decomposing>

<https://quizlet.com/26798570/6g1-area-of-polygons-flash-cards/>

[http://www.ixl.com/math/grade-6/Geometry Z/23. Z.23, Z/24. Z/25, and Z.26](http://www.ixl.com/math/grade-6/Geometry-Z/23.Z.23,Z/24.Z/25,and.Z.26)

<https://www.illustrativemathematics.org/content-standards/6/G/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

Solve real-world and mathematical problems involving area, surface area, and volume.

**Standard 6.G.3** 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.

#### **Background knowledge needed**

Understanding graphing points  $(x, y)$  in the coordinate plane

Understanding the difference between the  $x$ - and  $y$ -coordinates

#### **iPad resources**

**NONE**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Unit 3, Lesson 22
2. Kaplan Big Book: Equations, Inequalities, and Functions, Lesson 6
3. Steck-Vaughn Mathematical Reasoning, Unit 3, Lesson 11

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-G#6.G.A.3>

<https://learnzillion.com/lessonsets/243-draw-polygons-in-the-coordinate-plane-given-coordinates-for-the-vertices-and-use-coordinates-to-find-the-length-of-a-side>

<https://quizlet.com/43992276/6g3-polygons-on-the-coordinate-plane-flash-cards/>

<https://www.illustrativemathematics.org/content-standards/6/G/A/3>



## CCR Level 3 Math (Low Intermediate ABE)

### Geometry

Solve real-world and mathematical problems involving area, surface area, and volume.

**Standard 6.G.4** 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.

#### **Background knowledge needed**

Understanding the definition of a geometry net (a pattern that you can cut and fold to make a model of a solid shape)

Finding area of rectangles and triangles

#### **iPad resources**

**Maths app** >> **Pre-Algebra** >> Chapter 7: Geometry >> Geometry Nets (to help students understand the concept of a geometry net, but not to find surface area)

**Print resources (NOTE: The online resources address this standard more specifically than the print resources do.)**

1. Kaplan Big Book: Geometry, Lesson 7 (covers surface area but does not address nets)
2. Common Core Achieve, Lesson 7.3 (focus on surface area; also does not address nets)
3. Steck-Vaughn Mathematical Reasoning, Unit 4, Lesson 7 (focus on surface area, not volume)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-G#6.G.A.4>

<https://learnzillion.com/lessonsets/278-use-nets-to-represent-three-dimensional-figures-and-find-surface-area>

<https://learnzillion.com/lessonsets/74-show-three-dimensional-figures-as-being-composed-of-rectangles-and-triangles-find-surface-area>

<http://www.ixl.com/math/grade-6> Geometry, Z.35, Z.37, and Z.38

<https://www.illustrativemathematics.org/content-standards/6/G/A/4>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Standard 4.MD.2** 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.

#### **Background knowledge needed**

Understanding metric measurement, customary measurement, time measurement, and money measurement

#### **iPad resources**

**Maths app** >> **Pre-Algebra** >> Chapter 8: Measurement >> Customary Unit Conversions; also, Metric Unit Conversions; also, Units of Measurement

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), Unit 2, Lesson 14
2. Common Core Basics Mathematics, Lessons 11.1 and 11.2
3. Steck-Vaughn Mathematical Reasoning, Unit 2, Lesson 1
4. <http://run.careerready101.com/admin/workbooks.asp> Applied Mathematics workbook, Level 2 (money, time, and measurement)

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 84 - 85

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-MD#4.MD.A.2>

<https://learnzillion.com/lessonsets/407-solve-word-problems-involving-measurement-data>

<https://learnzillion.com/lessonsets/409-solve-word-problems-involving-the-conversion-of-measurement-data>

<https://learnzillion.com/lessonsets/626-represent-measurement-quantities-using-diagrams>

<https://learnzillion.com/lessonsets/627-solve-word-problems-involving-distance-time-volume-mass-and-money>

<https://quizlet.com/40749170/4md2-measurement-word-problems-flash-cards/>

<http://www.ixl.com/math/grade-4> Measurement, N.3 – N.7, N.9 – N.13

<https://www.illustrativemathematics.org/content-standards/4/MD/A/2>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

**Standard 4.MD.3** 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.*

#### Background knowledge needed

Understanding how to substitute for variables in a formula

Understanding how to solve a multiplication equation of the form  $ax = b$ .

#### iPad resources

**Maths app** >> **Geometry** >> Chapter 9: Area >> Area of Rectangles and Squares – Part 1

#### Print resources

1. Steck-Vaughn GED Mathematics (the red book), pp. 172 – 173

#### Workforce resources

1. McGraw-Hill Workforce Career Companions (all titles), pp. 82 -83

#### Online resources

<https://www.khanacademy.org/commoncore/grade-4-MD#4.MD.A.3>

<https://learnzillion.com/lessonsets/729-applying-formulas-for-rectangle-area-and-perimeter>

<https://quizlet.com/70557681/4md3-area-and-perimeter-practice-one-flash-cards/>

<http://www.ixl.com/math/grade-4> Geometry, P.25

<https://www.illustrativemathematics.org/content-standards/4/MD/A/3>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

Geometric measurement: understand concepts of angle and measure angles.

**Standard 4.MD.5** 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  $\frac{1}{360}$  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.

#### **Background knowledge needed**

Understanding vocabulary: *endpoint (vertex), rays, angle*

#### **iPad resources**

**Maths app** >> **Pre-Algebra** >> Chapter 7: Geometry >> Intro to Angles  
(loosely aligned with this standard)

#### **Print resources (NOTE: Online resources are more closely aligned with this standard than any of the usual print resources.)**

1. Steck-Vaughn GED Mathematics (the red book), Lesson 24, p. 286 has three paragraphs that explain this standard, but the exercises are not aligned with the standard.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-MD#4.MD.C.5>

<https://learnzillion.com/lessonsets/404-understand-angles-and-concepts-of-angle-measurement>

<https://learnzillion.com/lessonsets/712-understand-angles-angle-measurement-and-degrees>

<https://quizlet.com/59888275/section-1-4-angle-measure-flash-cards/>

<http://www.ixl.com/math/grade-4> Geometry, P.13

<https://www.illustrativemathematics.org/content-standards/4/MD/C/5>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

**Geometric measurement: understand concepts of angle and measure angles.**

**Standard 4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.**

#### **Background knowledge needed**

Understanding how to align a protractor and which set of numbers (top row or lower row) to use to measure the angle

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 7: Geometry >> Measuring Angles**

#### **Print resources**

**NONE**

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-MD#4.MD.C.6>

<https://learnzillion.com/lessonsets/593-measure-and-sketch-angles-using-a-protractor>

<http://www.ixl.com/math/grade-4> Geometry, P.15

<https://www.illustrativemathematics.org/content-standards/4/MD/C/6>

<http://www.mathworksheets4kids.com/measuring-angles.html> (printable worksheets)

<http://www.commoncoresheets.com/Angles.php> (printable worksheets)

<http://www.worksheetworks.com/math/geometry/measuring-angles.html> (printable worksheets)

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

**Geometric measurement: understand concepts of angle and measure angles.**

**Standard 4.MD.7 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.**

#### **Background knowledge needed**

Understanding the concept of non-overlapping, adjacent angles and how to measure angles

#### **iPad resources**

**NONE**

#### **Print resources**

**NONE**

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-4-MD#4.MD.C.7>

<https://learnzillion.com/lessonsets/595-recognize-angle-measure-as-additive>

<http://www.ixl.com/math/grade-4> Geometry, P.17

<https://www.illustrativemathematics.org/content-standards/4/MD/C/7>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4md7>  
(printable worksheets)

<https://www.splashmath.com/math-skills/fourth-grade/measurement/add-and-subtract-angles> (online practice)

[http://www.helpingwithmath.com/printables/worksheets/geometry/4md7measuring\\_angles01.htm](http://www.helpingwithmath.com/printables/worksheets/geometry/4md7measuring_angles01.htm) (printable worksheets)

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

Convert like measurement units within a given measurement system.

**Standard 5.MD.1** 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.

#### **Background knowledge needed**

Understanding the customary units and their relationships

Understanding the metric units and their relationships

Multiplying and dividing skills

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 8: Measurement >> Customary Unit Conversions;** also, Metric Unit Conversions; also, Units of Measurement

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), pp. 144 – 145
2. Common Core Basics Mathematics, Lessons 11.1 and 11.2
3. Steck-Vaughn Mathematical Reasoning, Unit 2, Lesson 1

#### **Workforce resources**

1. McGraw-Hill Workforce Career Companions (all titles), pp. 84 - 85

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.A.1>

<https://learnzillion.com/lessonsets/697-convert-measurement-units-and-solve-real-world-problems>

<https://learnzillion.com/lessonsets/548-convert-among-different-sized-measurement-units-and-use-these-conversions-to-solve-real-world-problems>

<https://quizlet.com/56845137/5th-grade-common-core-5md1-flash-cards/>

<http://www.ixl.com/math/grade-5> Measurement, W.1 – W.13

<https://www.illustrativemathematics.org/content-standards/5/MD/A/1>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

#### Represent and interpret data.

**Standard 5.MD.2** Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ). Use operations on fractions for this grade 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.*

#### **Background knowledge needed**

Understanding operations with fractions

Understanding order of fractions

#### **iPad resources**

**NONE**

#### **Print resources**

1. Kaplan Big Book: Decimals and Fractions, Lesson 6, shows examples of working with fractions on the number line. **The examples do not truly address this standard.**

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.B.2>

<https://learnzillion.com/lessonsets/699-solve-problems-involving-measurement-data-in-fractions-of-a-unit-displayed-line-plots>

<https://quizlet.com/13128965/5th-grade-common-core-5md2-flash-cards/>

<http://www.ixl.com/math/grade-5> Data and graphs, S.10 – S.12

<https://www.illustrativemathematics.org/content-standards/5/MD/B/2>



## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

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

***Standard 5.MD.3*** 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.

#### ***Background knowledge needed***

Identifying solid figures

Understanding the difference between two- and three-dimensional figures

Understanding the difference between surface area and volume

#### ***iPad resources***

**NONE**

#### ***Print resources***

1. Steck-Vaughn GED Mathematics (the red book), pp. 174 – 175

#### ***Online resources***

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.C.3>

<https://learnzillion.com/lessonsets/363-understand-volume>

<https://learnzillion.com/lessonsets/284-understand-volume-as-an-attribute-of-three-dimensional-figures-measure-volume-by-counting-unit-cubes-relate-volume-to-multiplication-and-addition>

<https://quizlet.com/13130379/5th-grade-common-core-5md3-ab-flash-cards/>

<http://www.ixl.com/math/grade-5> Geometry, B.23

<https://www.illustrativemathematics.org/5.MD.C.3>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

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

**Standard 5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.**

#### **Background knowledge needed**

Understanding the concept of the unit cube

#### **iPad resources**

**NONE**

#### **Print resources**

1. Steck-Vaughn GED Mathematics (the red book), pp. 174 – 175

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.C.4>

<https://learnzillion.com/lessonsets/364-count-unit-cubes-to-measure-volume>

<http://www.ixl.com/math/grade-5> Geometry, B.23 and B.24

<https://www.illustrativemathematics.org/content-standards/5/MD/C/4>

<https://www.youtube.com/watch?v=wFDvgco13cM>

<https://www.splashmath.com/math-skills/fifth-grade/geometry/volume-using-unit-cubes>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5md4>

CCR Level 3 Math (Low Intermediate ABE)

**Measurement and Data**

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

**Standard 5.MD.5 Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**

**Background knowledge needed**

Understanding the concepts of volume, the unit cube, and the operations of multiplication and addition

**iPad resources**

**NONE**

**Print resources**

**NONE**

**Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.C.5>

<https://learnzillion.com/lessonsets/365-relating-volume-to-the-operations-of-multiplication-and-addition>

<http://www.ixl.com/math/grade-5> Geometry, B.23 and B.24

<https://www.illustrativemathematics.org/5.MD.C.5>

CCR Level 3 Math (Low Intermediate ABE)

Measurement and Data

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

**Standard 5.MD.5a** 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.

**Background knowledge needed**

Identifying and understanding the parts of a right rectangular prism

**iPad resources**

NONE

**Print resources**

None of the usual print resources specifically addresses this standard.

**Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.C.5a>

<https://learnzillion.com/lessonsets/365-relating-volume-to-the-operations-of-multiplication-and-addition>

<https://www.illustrativemathematics.org/5.MD.C.5> (Scroll down to 5.MD.C.5.a)

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5md5a>

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

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

**Standard 5.MD.5b Apply the formulas  $V = l \times w \times h$  and  $V = Bh$  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.**

#### **Background knowledge needed**

Substituting into formulas and performing the resulting calculations

Understanding that the variable  $B$  represents the area of the base ( $l \times w$ )

#### **iPad resources**

**Maths app >> Pre-Algebra >> Chapter 8: Measurement >> Volume of Prisms and Pyramids (focus only on the prisms)**

#### **Print resources**

1. Steck-Vaughn Access Mathematics, pp. 58 – 59
2. Steck-Vaughn GED Mathematics, pp. 278 – 279 (focus only on rectangular prisms, not cylinders)
3. Common Core Basics Mathematics, Lesson 12.6
4. Kaplan Big Book: Geometry, Lesson 6 (focus only on rectangular solids and cubes)
5. Common Core Achieve Mathematics, Lesson 7.3 (focus only on rectangular prisms and volume)
6. Steck-Vaughn Mathematical Reasoning, Unit 4, Lesson 7 (focus only on rectangular prisms, not cylinders)

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.C.5b>

<https://learnzillion.com/lessonsets/365-relating-volume-to-the-operations-of-multiplication-and-addition>

<https://quizlet.com/77997555/volume-of-cubes-and-rectangular-prisms-flash-cards/>

<http://www.ixl.com/math/grade-5> Geometry, B.25

<https://www.illustrativemathematics.org/5.MD.C.5> (Scroll down to 5.MD.C.5.b)

## CCR Level 3 Math (Low Intermediate ABE)

### Measurement and Data

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

**Standard 5.MD.5c** 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.

#### **Background knowledge needed**

Understanding how to calculate the volume of a right rectangular prism  
Understanding the sum of the parts equals the whole

#### **iPad resources**

**NONE**

#### **Print resources**

None of the usual print resources specifically addresses this standard. The print resources mix other figures with the right rectangular prisms.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-5-MD#5.MD.C.5c>

<https://learnzillion.com/lessonsets/365-relating-volume-to-the-operations-of-multiplication-and-addition>

<https://www.illustrativemathematics.org/5.MD.C.5> (Scroll down to 5.MD.C.5.c)

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5md5c>

## CCR Level 3 Math (Low Intermediate ABE)

### Statistics and Probability

Develop understanding of statistical variability.

**Standard 6.SP.1** 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.

#### **Background knowledge needed**

Understanding the definitions of *variability* and *data*

#### **iPad resources**

**NONE**

#### **Print resources**

None of the usual print resources addresses this particular standard.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-SP#6.SP.A.1>

<https://quizlet.com/72716570/6sp1-statistical-questions-flash-cards/>

<https://www.illustrativemathematics.org/content-standards/6/SP/A/1/tasks/703>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=6sp1>

## CCR Level 3 Math (Low Intermediate ABE)

### Statistics and Probability

Develop understanding of statistical variability.

**Standard 6.SP.2** Understand that a set of data collected to answer a statistical question has a distribution which can be describe by its center, spread, and overall shape.

#### **Background knowledge needed**

Understanding the definitions of *clusters*, *gaps*, *peaks*, and *outliers*  
Being able to recognize clusters, gaps, and peaks in a picture graph

#### **iPad resources**

**Maths app** >> **Pre-Algebra** >> Chapter 9: Probability and Statistics >> Box-and-Whisker Plots loosely aligns with this standard.

#### **Print resources**

None of the usual print resources addresses this particular standard.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-SP#6.SP.A.2>

<https://learnzillion.com/lessonsets/132-understand-and-describe-the-distribution-of-a-set-of-data>

<https://learnzillion.com/lessonsets/500-understand-that-statistical-data-sets-have-distributions-that-can-be-described-in-terms-of-center-spread-and-overall-shape>

<https://quizlet.com/47379724/stat-distribution-shapes-1-flash-cards/>

<https://www.illustrativemathematics.org/content-standards/6/SP/A/2>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=6sp2>



## CCR Level 3 Math (Low Intermediate ABE)

### Statistics and Probability

Develop understanding of statistical variability.

**Standard 6.SP.3** 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.

#### **Background knowledge needed**

Understanding the difference between a measure of center and a measure of variation

#### **iPad resources**

**NONE**

#### **Print resources**

None of the usual print resources addresses this standard.

#### **Online resources**

<https://www.khanacademy.org/commoncore/grade-6-SP#6.SP.A.3>

<https://learnzillion.com/lessonsets/682-recognize-that-measures-of-center-for-a-numerical-data-set-summarize-all-values-while-measures-of-variation-describe-how-they-vary>

<https://learnzillion.com/lessonsets/500-understand-that-statistical-data-sets-have-distributions-that-can-be-described-in-terms-of-center-spread-and-overall-shape>

<https://learnzillion.com/lessonsets/158-recognize-and-use-measures-of-center-and-measures-of-variation-to-describe-data>

<https://quizlet.com/40969567/measures-of-center-and-variation-flash-cards/>

<https://www.illustrativemathematics.org/content-standards/6/SP/A/3>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=6sp3>

## CCR Level 3 Math (Low Intermediate ABE)

### Statistics and Probability

#### Summarize and describe distributions.

**Standard 6.SP.4** Display numerical data in plots on a number line, including dot plots, histograms, and box plots. [Also see S.ID.1]

#### Background knowledge needed

Understanding how to calculate the mean, median, and interquartile range to sketch a box plot

#### iPad resources

**Maths app** >> **Pre-Algebra** >> Chapter 9: Probability and Statistics >> Pictographs and Line Plots; also, Histograms; also, Box-and-Whisker Plots

#### Print resources

1. Kaplan Big Book: Data, Statistics, and Probability: Lessons 5 and 6
2. Common Core Achieve Mathematics, Lesson 8.3
3. Steck-Vaughn Mathematical Reasoning, Unit 2, Lesson 7

#### Online resources

<https://www.khanacademy.org/commoncore/grade-6-SP#6.SP.B.4>

<https://learnzillion.com/lessonsets/738-display-data-using-a-number-line-dot-plots-histograms-and-box-plots>

<https://quizlet.com/79049153/6sp4-dot-plots-flash-cards/>

<http://www.ixl.com/math/grade-6> Data and graphs, R.4, R.5, and R.12

<https://www.illustrativemathematics.org/content-standards/6/SP/B/4>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=6sp4>