2014-2015 MCCL Mathematics Curriculum

w/ High School Additions

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Math: Operations: Addition & Subtraction

Content Area: Math
Measurement Topic: Operations: Addition & Subtraction
Scope Level: 01
Learning Target: MA.01.OAS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands addition and subtraction can be represented by using objects, fingers, mental images, drawings, sounds, or equations.	Comprehension	• show addition and subtraction with objects, fingers, mental images, drawings, sounds or equations.
2 Foundational Proficiency	Knows the terms: adding to, taking from, putting together, taking apart, addition, subtraction. Knows the meaning of the following symbols/signs: =, +, -	Retrieval	• describe the terms: addition and subtraction. • describe what the follow symbols mean: =,+,- • describe the terms: adding to, taking from, putting together, taking apart,
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Addition & Subtraction
Scope Level: 02
Learning Target: MA.02.OAS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that numbers to 10 can be decomposed into pairs in more than one way and recorded using a drawing or equation.	Comprehension	• represent numbers less than or equal to 10 in pairs in more than one way, (e.g., by using objects or drawing), and record each number sentences with a drawing or equation (5=2+3;5=4+1).
2 Foundational Proficiency	Knows the terms: solve, problems. Knows the meaning of a number sentence.	Retrieval	• describe the terms: problems. • can identify a number sentence
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Addition & Subtraction
Scope Level: 03
Learning Target: MA.03.OAS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands addition as putting together and adding to numbers within 20. Understands subtraction as taking apart and taking from numbers within 20. Understands addition and subtraction can be represented in an equation form.	Comprehension	• solve problems that include situations that represent addition and subtraction of numbers within 20. • show these situations in the form of an equation or drawing.
2 Foundational Proficiency	Knows the terms: ordering, grouping, sum, difference Knows that counting relates to adding (eg counting by twos, adds 2)	Retrieval	• describe the terms ordering, grouping, sum, difference. explain that counting relates to adding (through the use of a number line, objects, drawings)
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Addition & Subtraction
Scope Level: 04
Learning Target: MA.04.OAS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the commutative, identity and associative properties of addition.	Comprehension	• describe the relationship among commutative, identity, and associative property of addition. • show examples of the commutative, identity and associative properties of addition. • show or list ways in which addition and subtraction are related.
2 Foundational Proficiency	Knows the terms: commutative, identify, and associative properties of addition.	Retrieval	• define the terms: commutative property, identify property and associative property.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Addition & Subtraction
Scope Level: 05
Learning Target: MA.05.OAS.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at adding and subtracting one digit with two digit and two digit with two digit numbers.	Retrieval	• solve addition and subtraction problems within 100 involving one digit with two digit numbers and two digit with two digit numbers.
2 Foundational Proficiency	Knows the concept of borrowing and carrying (regrouping). Knows the steps to adding: one digit with two digit numbers, two digit with two digit numbers	Retrieval	• describe the concepts of borrowing and carrying related to regrouping of numbers. • list the steps to adding one digit with two digit numbers, two digit with two digit numbers.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Addition & Subtraction
Scope Level: 06
Learning Target: MA.06.OAS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands how to solve word problems using addition and subtraction of whole numbers.	Analysis	• solve real world word problems using addition and subtraction with whole numbers. DR
2 Foundational Proficiency	Is skilled at addition and subtraction of whole numbers with three or more digits	Retrieval	• solve addition and subtraction of whole numbers with three or more digits using strategies and algorithms based on the properties and/or the relationship between addition and subtraction.
1	With help….. has the 2.0 content.		
Notes:			

Math: Operations: Multiplication & Division

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 01
Learning Target: MA.01.OMD.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the relationship between multiplication and addition. Understands various ways to represent multiplication	Comprehension	• represent 4 + 4 + 4 = 12 as 4 X 3 = 12. • solve multiplication problems in situations involving equal groups and arrays by using drawings and equations.
2 Foundational Proficiency	Knows the terms: solve, problems, pairs, product, array.	Retrieval	• define the terms: solve, problems, pairs, product, array.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 02
Learning Target: MA.02.OMD.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concepts of the Commutative, Associative, Identity, Property of Zero, and Distributive Properties of multiplication	Comprehension	• show how the commutative, associative, identity, property of 0 and distributive properties of multiplication are used.
2 Foundational Proficiency	Knows the Commutative, Associative, Identity, Property of Zero, and Distributive Properties of multiplication	Retrieval	• list or identify from a list examples of the commutative, associative, identity, property of 0 and distributive properties of multiplication.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 3
Learning Target MA.03.OMD.02.02 **:**

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at multiplying a multi-digit number by a one digit number and multiplying two by two-digit numbers	Retrieval	• solve problems involving multiplying a multi-digit number by a one digit number and multiplying two by a two-digit numbers.
2 Foundational Proficiency	Knows signal words/phrases in word problems for multiplication Knows multiplication facts through 10	Retrieval	• recognize from a list signal words/phrases used in multiplication word problems. • list multiples for whole numbers up to 9.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 4
Learning Target: MA.04.OMD.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that a whole number is a multiple of each of its factors. Understands the relationship between multiplication and division.	Comprehension	• show all factor pairs for a given whole number between 1-100. • show the relationship between multiplication and division by expressing division as an unknown factor problem (32/? = 8; 8x4=32).
2 Foundational Proficiency	Knows the terms: factor, prime number, composite number. Knows factor pairs for prime and composite numbers up to 100.	Retrieval	• identify each number in a list as prime or composite. List factor pairs for a number.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 05
Learning Target: MA.05.OMD.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at dividing a 4 digit dividend by a one digit divisor with remainders.	Retrieval	• divide a 4 digit dividend by a one digit divisor with the remainder.
2 Foundational Proficiency	Is skilled at finding a whole number quotients without remainders up to a 4-digit dividend by a one digit divisor using multiple strategies. Knows the terms: quotient, dividend, divisor, remainder. Is skilled at dividing a 4 digit dividend by a one digit divisor without remainders.	Retrieval	• divide a 4 digit dividend by a one digit divisor. • identify the terms: quotient, dividend, divisor, remainder.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 06
Learning Target: MA.06.OMD.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at dividing up to a four-digit dividend by a two-digit divisor.	Retrieval	• solve multi-digit whole number division problems (320 ÷ 12, 4368 ÷ 40, 1234 ÷ 16)
2 Foundational Proficiency	Knows the steps to using the standard algorithm for multiplication	Retrieval	• recall steps to multiply multi-digit numbers.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Operations: Multiplication & Division
Scope Level: 07
Learning Target: MA.07.OMD.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving multiplication and division word problems	Retrieval	• solves word problems using multiplication and division.
2 Foundational Proficiency	Knows signal words/phrases in word problems for multiplication and division.	Retrieval	• recognize from a list, signal words/phrases used in multiplication and division word problems.
1	With help….. has the 2.0 content.		
Notes:			

Math: Number Sense: Counting & Cardinality

Content Area: Math
Measurement Topic: Number Sense: Counting & Cardinality
Scope Level: 01
Learning Target: MA.01.NSC.01.??

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the relationship between numbers and quantities. Understands the number of objects is the same regardless of arrangement or order in which they were counted.	Comprehension	• say the number names in order, pairing each object counted with one number. • show the number of objects is the same regardless of arrangement or order in which they were counted.
2 Foundational Proficiency	Knows that the last number named tells the number of objects counted.	Retrieval	• count to answer "how many" up to 10 objects
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Counting & Cardinality
Scope Level: 02
Learning Target: MA.02.NSC.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands each successive number name refers to a quantity that is one larger. Knows how to count forward beginning from a given number.	Comprehension	• describe how each successive number name refers to a quantity that is one larger. • show how to count forward from any given number by ones, from 0-100.
2 Foundational Proficiency	Knows the sequence of numbers 1 to 100.	Retrieval	• count to 100 by ones
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Counting & Cardinality
Scope Level: 03
Learning Target: MA.03.NSC.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands greater than, less than, or equal to for objects using terms and symbols (<, >, =).	Analysis	• compare two groups and identify which is greater than, less than or equal to. CR
2 Foundational Proficiency	Knows the terms and symbols: less than, greater than, equal to, < , >, =	Retrieval	• determine if the statement is true using the terms and symbols: less than, greater than, equal to.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Counting & Cardinality
Scope Level: 04
Learning Target: MA.04.NSC.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Knows skip counting by 2's	Retrieval	• count by 2's.
2 Foundational Proficiency	Knows skip counting by 5's and 10's.	Retrieval	• count by 5's and 10's.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Counting & Cardinality
Scope Level: 05
Learning Target: MA.05.NSC.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Knows the difference between even and odd numbers	Retrieval	• can count by 2's with even and odd numbers
2 Foundational Proficiency	Knows the terms: even number and odd number	Retrieval	• identify even and odd numbers.
1	With help….. has the 2.0 content.		
Notes:			

Math: Number Sense: Place Value

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 01
Learning Target: MA.01.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concept of place value for numbers 11 to 19	Comprehension	• compose and decompose numbers from 11 to 19 into ten ones and some further ones, using objects or drawings and record the equation.
2 Foundational Proficiency	Knows the terms: place value & ones place. Knows the numbers from 11-19 are composed of, ten ones and one, two, three, four, five, six, seven, eight, or nine ones	Retrieval	• describe what place value is. • identify the ones place of a given number. • describe numbers between 11 and 19 are made up of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 02
Learning Target: MA.02.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand what the digits of a two digit number (20-99) represent (amounts of tens and ones).	Comprehension	• describe the parts of a two digit number in terms of tens and ones.
2 Foundational Proficiency	Knows the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one....nine tens and zero ones. Knows the term: tens place. Knows 10 can be thought of as a bundle of ten ones-called ten	Retrieval	• describe the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 in terms of the number of tens and zero ones. • identify the tens place of a given number.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 03
Learning Target: MA.03.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that the three digits of a three-digit number represent amount of hundreds, tens, and ones	Comprehension	• represents the place value of numbers within 100 in terms of hundreds, tens and ones.
2 Foundational Proficiency	Knows that 100 can be thought of as a bundle of ten tens-called a hundred. Knows the numbers 100-900 refer to one, two.....nine hundreds and zero tens and zero ones. Knows the term: expanded notation,	Retrieval	• recognize a bundle of ten tens is called a hundred. • describe the numbers 100 - 900 in terms of the number of hundreds, tens and zero ones. • define and give an example of expanded notation.
1	With help..... has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 04
Learning Target: MA.04.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the rules for rounding whole numbers to any place using place value	Analysis	• round whole numbers to any place. DR
2 Foundational Proficiency	Knows place value names to millions.	Retrieval	• identify place value names beyond 100.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 05
Learning Target: MA.05.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the place value system: that a digit in one place represents 10 times as much as it represents in the place to its right represents	Analysis	• apply the concepts of place value and division to multi- digit whole numbers. For example, recognize that 700/70=10. DR
2 Foundational Proficiency	Knows the term: base ten	Retrieval	• define the term base ten.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 06
Learning Target: MA.06.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the place value system: that a digit in ones place represents 1/10 of what it represents in the place to its left	Analysis	• generalize that a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. For example, recognize that 70/10=7.
2 Foundational Proficiency	Knows the patterns in the number of zeroes in the product when multiplying a number by powers of 10. Knows place value names to the thousandths	Retrieval	• explain the pattern of the number zeros when multiplying a number by powers of 10. • identify place value names to the thousandths.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Place Value
Scope Level: 07
Learning Target: MA.07.NSP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concept of rounding decimals to any place using place value	Analysis	• use the rules to round decimal numbers to any place. DR
2 Foundational Proficiency	Knows the rule for rounding decimals	Retrieval	• explain the rule for rounding decimals.
1	With help….. has the 2.0 content.		
Notes:			

Math: Number Sense: Fractions, Decimals & Percents

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 01
Learning Target: MA.01.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that a whole is made up of parts.	Comprehension	• using manipulatives show how smaller sections can be put together to make a whole. Ex. Two triangles put together to make a square.
2 Foundational Proficiency	Know terms: part and whole	Retrieval	• describe the difference between part and whole.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 02
Learning Target: MA.02.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that a circle or rectangle can be divided up into equal parts. Understands that each of the equal parts represents a fraction 1/b as a quantity formed by one part when the whole figure is divided up into b equal parts.	Comprehension	• partition circles and rectangles into two, three, and four equal parts. • describe the parts using the words halves, thirds, fourths, and quarters. represent a fraction 1/b visually and in words demonstrating the quantity formed by 1 part when a whole is partitioned into b equal parts.
2 Foundational Proficiency	Know terms: fraction, halves, thirds, fourths, quarters, numerator, denominator	Retrieval	• label the terms: fraction, halves, thirds, fourths, quarters, numerator, denominator.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 03
Learning Target: MA.03.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand two fractions are equivalent (equal) if they are the same size or the same point on a number line.	Comprehension	• list equivalent fractions and represent them on a number line. • describe why they are at the same point on the number line. • explain why fractions are equivalent using a visual modl.
2 Foundational Proficiency	Knows term: equivalent. Knows simple equivalent fractions for half, thirds, fourths. Knows the steps for generating equivalent fractions.	Retrieval	• define the term: equivalent. • list fractions equivalent to one half, one third, two thirds, one fourth, three fourths. • explain the steps to finding equivalent fractions.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 04
Learning Target: MA.04.NSF.01.04

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the rules for adding and subtracting fractions with like denominators and simplifying the results.	Analysis	• add and subtract fractions with like denominators and simplify the answer.
2 Foundational Proficiency	Knows the rules for adding and subtracting fractions with like denominators. Knows how to appropriately place a fraction on a number line. Knows the terms: improper fraction, mixed number.	Retrieval	• list the steps to the rules for adding and subtracting of fractions with like denominators. • represent a fraction on the number line.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 05
Learning Target: MA.05.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the rules for ordering and comparing fractions with like and unlike denominators.	Analysis	• compare and order fractions with like and unlike denominators. CR
2 Foundational Proficiency	Knows the rules for ordering and comparing basic fractions (halves, thirds, fourths).	Comprehension	• describe the rules behind ordering and comparing basic fractions.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 06
Learning Target: MA.06.NSF.01.04

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands decimal notation for fractions with a denominator of 10, 100, 1000. Understands the relationship between tenths and hundredths place in fractions and decimals	Analysis	• convert decimal notation for fractions with a denominator of 10, 100 and 1000 by rewriting a decimal as a fraction (for example, 0.62 = 62/100). DR • explain ways in which a fraction with a denominator of 10 can be equal to a fraction with a denominator of 100 and how they are expressed as decimals.
2 Foundational Proficiency	Know terms: place value for decimals (tenths, hundredths, thousandths).	Retrieval	• identify the place value of a given decimal number.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 07
Learning Target:

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands decimal notation for fractions with a denominator of 10, 100, 1000. Understands the relationship between tenths and hundredths place in fractions and decimals	Analysis	• convert decimal notation for fractions with a denominator of 10, 100 and 1000 by rewriting a decimal as a fraction (for example, 0.62 = 62/100). DR • explain ways in which a fraction with a denominator of 10 can be equal to a fraction with a denominator of 100 and how they are expressed as decimals.
2 Foundational Proficiency	Know terms: place value for decimals (tenths, hundredths, thousandths).	Retrieval	• identify the place value of a given decimal number.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 08
Learning Target: MA.08.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at addition and subtraction of fractions with unlike denominators and simplifying the results.	Retrieval	• solve problems and word problems involving addition and subtraction of fractions with unlike denominators (simplify answers to lowest terms).
2 Foundational Proficiency	Knows the steps for setting up addition and subtraction of fractions with unlike denominators.	Retrieval	• describe the steps for adding and subtracting fractions with unlike denominators.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 09
Learning Target: MA.09.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at addition and subtraction of mixed numbers Is skilled at renaming fractions to simplest form.	Retrieval	• solve problems and word problems involving addition and subtraction of mixed numbers (simplify answers to lowest terms)
2 Foundational Proficiency	Knows the steps for using GCF to simplify fractions. Knows the term: least common denominator (lcd), improper fraction and mixed number.	Retrieval	• describe the steps for adding and subtracting fractions with unlike denominators. • identify and give examples of a mixed number, improper fraction and least common denominator (LCD).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 10
Learning Target: MA.10.NSF.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at multiplying fractions and whole numbers.	Retrieval	• solve problems involving multiplication of fractions and whole numbers.
2 Foundational Proficiency	Knows the steps for multiplying fractions and fractions with whole numbers. Knows the terms: reciprocal, & multiplicative inverse.	Retrieval	• describe the steps for multiplying fractions and fractions with whole numbers. • describe the terms: reciprocal & multiplicative inverse.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 11
Learning Target: MA.11.NSF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at dividing fractions by a fraction and fraction by a whole numbers.	Retrieval	• solve problems involving division of fractions and whole numbers. • solve problems and word problems involving the division of a unit fraction by a whole number and a whole number by a unit fraction.
2 Foundational Proficiency	Knows the steps for dividing fractions and fractions with whole numbers. Knows the term: complex fraction. Knows there is a relationship between division and fractions.	Retrieval	• describe the steps for dividing fractions and fractions with whole numbers. • describe the term: complex fraction. • describe the relationship between division and fractions.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 12
Learning Target: MA.12.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at multiplication and division of decimals to hundredths place.	Retrieval	• solve problems involving multiplication and division of decimals to hundredths place using the algorithm.
2 Foundational Proficiency	Knows the steps for multiplication and division of decimals.	Retrieval	• explain the steps for multiplication and division of decimals.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 13
Learning Target: MA.13.NSF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding the percent of a quantity.	Retrieval	• compare two different proportional relationships. • find a percent of a quantity as a rate per hundred.
2 Foundational Proficiency	Knows terms: percent, quantity, terminating or repeating decimal, bar notation. Understands the relationships among fractions, decimals and percent.	Retrieval	• define and give an example of: percent, quantity, terminating or repeating decimal, bar notation. • represent given fractions as the percent and decimal equivalent.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number Sense: Fractions, Decimals, Percents
Scope Level: 14
Learning Target: MA.14.NSF.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using proportional relationships to solve problems.	Comprehension	• solve multi-step word problems using proportional relationships. (e.g., simple interest, tax, mark ups, markdowns, gratuity, commissions, fees, percent increase/decrease
2 Foundational Proficiency	Knows how to set up problems using proportions. Know the terms: ratio and proportion	Retrieval	• write a proportion that would represent a description in a problem. • represent two quantities as a proportional relationship
1	With help….. has the 2.0 content.		
Notes:			

Math: Number & Quantity: Number Systems

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 01
Learning Target: MA.01.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the order of integers on a number line.	Comprehension	• represent integers on a number line in order
2 Foundational Proficiency	Knows terms: opposite, additive inverse, integer. Knows positive and negative numbers are used together to describe quantities having opposite directions	Retrieval	• identify the terms: opposite, inverse. • describe ways in which positive and negative numbers are used to represent quantities in real world contexts (temperature above and below zero; elevation above and below sea level; credit/debit).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 02
Learning Target: MA.02.NQN.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at adding and subtracting integers using a number line.	Retrieval	• show addition and subtraction of integers on a horizontal and/ or vertical number line.
2 Foundational Proficiency	Know the rules for addition and subtracting integers.	Retrieval	• state the rules for the addition and subtraction of integers.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 03
Learning Target: MA.03.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at multiplying and dividing integers (this is about using the rules of signs correctly).	Retrieval	• multiply and divide integers.
2 Foundational Proficiency	Knows the rules for multiplying and dividing integers (i.e. same sign is positive, different signs are negative).	Retrieval	• state the rules for multiplication/division (i.e. same sign is positive, different signs are negative).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 04
Learning Target: MA.04.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at adding, subtracting, multiplying and dividing rational numbers.	Retrieval	• add, subtract, multiply & divide rational numbers.
2 Foundational Proficiency	Knows the term: rational numbers.	Retrieval	• define and give examples of rational numbers.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 04
Learning Target: MA.04.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at adding, subtracting, multiplying and dividing rational numbers.	Retrieval	• add, subtract, multiply & divide rational numbers.
2 Foundational Proficiency	Knows the term: rational numbers.	Retrieval	• define and give examples of rational numbers.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 05
Learning Target: MA.05.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the rules of exponents (i.e power of product, product of a power). Understand the relationship between multiplication and positive exponents. Understand the relationship between multiplication and negative exponents.	Analysis	• evaluate expressions or equations using the rules of exponents (e.g., (3x9)^2; 9^2; (0.2a^2b^3)^2. • evaluate equivalent numerical expressions (for example: 4^3 = 4 x 4 x 4 = 64) • evaluate equivalent numerical expressions (for example: 3^2 x 3^-5 = 3^-3 = 1/3^3 = 27).
2 Foundational Proficiency	Knows the rules of exponents. Know the terms: exponent, base, exponential form, power, expanded form, square, cube.	Retrieval	• state the rules of exponents when used in multiplication equations. • define the terms: exponent, base, exponential form, power, expanded form, square, cube.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 06
Learning Target: MA.06.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at basic operations using scientific notation	Retrieval	• solves problems involving basic operations with scientific notation. DR
2 Foundational Proficiency	Knows how to convert between scientific notation and standard form	Retrieval	• converts numbers into scientific notation.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 07
Learning Target: MA.07.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the relationship between rational and irrational numbers	Comprehension	• plot rational and irrational numbers on a number line and describe the relationship between them.
2 Foundational Proficiency	Knows the terms: irrational number, relative position	Retrieval	• define and give examples of: irrational number, relative position.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 08
Learning Target: MA.08.NQN.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the properties of rational exponents	Analysis	• apply the rules of rational exponents (e.g., 21a^2/7b; (-xy)^3). DR
2 Foundational Proficiency	Knows that rational exponents have equivalent radical forms	Retrieval	• give the equivalent radical form for a given rational exponent.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Number & Quantity: Number Systems
Scope Level: 09
Learning Target: MA.09.NQN.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that there is a number system beyond the real number system. Understands what an imaginary number is.	Comprehension	• explain a complex number i such that i^2 = -1, and every complex number has the form a+bi with a and b real. • explain how i^2 = -1 can be used to add, subtract, and multiply complex numbers.
2 Foundational Proficiency	Knows the terms: complex number, imaginary number, real number	Retrieval	• define the terms: complex number, imaginary number.
1	With help….. has the 2.0 content.		
Notes:			

Math: Geometry: Attributes & Properties

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 1
Learning Target: MA.01.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concepts of directionality and location of objects	Comprehension	• describes the relationship between objects in environment (using their names), and their positions, (using the terms above, below, beside, in front of, behind, and next to).
2 Foundational Proficiency	Knows terms: above, below, beside, in front of, behind, and next to.	Retrieval	• demonstrate with manipulatives the terms: above, below, beside, in front of, behind, and next to (for example, "place the red block above the blue block").
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 02
Learning Target: MA.02.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands defining attributes of the following shapes: triangle, quadrilateral, pentagon, hexagon, trapezoid, rectangle, square, and rhombus.	Comprehension	• build or draw shapes, triangle, quadrilateral, pentagon, hexagon, trapezoid, rectangle, square, and rhombus with specific defining attributes.
2 Foundational Proficiency	Knows terms: square, triangle, rectangle, hexagon, trapezoid, rhombus, circle. Knows non-defining attributes (color, size, orientation)	Retrieval	• identify the shapes: circle, square, triangle, hexagon, trapezoid, rhombus. • identify from a list of attributes the non-defining attributes.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 03
Learning Target: MA.03.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the symmetry in shapes or figures.	Analysis	• sort or classify shapes or figures according to their line(s) of symmetry. CLR
2 Foundational Proficiency	Knows the term: symmetry	Retrieval	• define the term: symmetry.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 04
Learning Target: MA.04.GAP.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that shapes in different categories may share attributes and that the shared attributes can define a larger category (e.g. quadrilaterals)	Analysis	• classify shapes according to their attributes. • create a generalization based on the classification. CLR
2 Foundational Proficiency	Knows the terms: polygon, quadrilateral, regular and irregular polygons & parallelogram, parallel lines, perpendicular lines and right angle	Retrieval	• identifies examples of quadrilaterals, rhombus, rectangle, square. • describe the terms: parallel lines, perpendicular lines, and right angle.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 05
Learning Target: MA.05.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the different attributes of triangles.	Analysis	• classify triangles according to their attributes. CLR
2 Foundational Proficiency	Knows the terms: equilateral, isosceles, scalene, obtuse, acute, and right triangles.	Retrieval	• define the types of triangles.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 06
Learning Target: MA.06.GAP.02.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the similarities and differences among the angles and lines of shapes. Understands how to compose a geometric shape with given conditions	Analysis	• categorize 2 D figures based on the properties of points, lines, line segments, rays, angles (right, acute, obtuse), perpendicular lines, and parallel lines. • draw (freehand, with ruler and protractor, and technology) geometric shapes with given conditions (a triangle from 3 angle measures, or sides).
2 Foundational Proficiency	Knows the terms: point, line, line segment, ray, angle (acute, obtuse), protractor.	Retrieval	• draw and label the terms: point, line, line segment, ray, angle (right, acute, obtuse), perpendicular lines, parallel lines.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 07
Learning Target: MA.07.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the similarities and differences between or among two-dimensional and three-dimensional shapes	Analysis	• compare two and three dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/ “corners”) and other attributes (e.g., sides of equal length). (COMP)
2 Foundational Proficiency	Knows the following details: 2-dimensional shapes are lying in a plane (flat), 3-dimensional shapes are solid. Knows attributes of shapes: sides, edges, angles, vertices (corners), faces	Comprehension	• identify shapes as two-dimensional (lying in a plane, 'flat') or three-dimensional 'solid’. • label the attributes of a given shape for both 2-D and 3-D shapes.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 08
Learning Target: MA.08.GAP.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands supplementary, complementary, vertical, and adjacent angles. Understand angle relationships: parallel lines cut by a transversal, angle sum and exterior angles of a triangle.	Analysis	• write and solve equations for an unknown angle in a figure. • arrange 3 copies of the same triangle so that the sum of the three angles form a line and give an argument in terms of transversals why this is true.
2 Foundational Proficiency	Knows the terms supplementary, complementary, vertical, adjacent angles, transversal, alternate exterior angle, alternate interior angle, exterior angle, interior angle, corresponding angles, consecutive interior angles	Retrieval	• label the terms in a given diagram.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 09
Learning Target: MA.09.GAP.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations;	Comprehension	• given two congruent figures, describe a sequence that confirms the congruence between them.
2 Foundational Proficiency	Knows the terms: rotation, reflection, translations	Retrieval	• label a given diagram using the terms: rotation, reflection, translations.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 10
Learning Target: MA.10.GAP.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations;	Comprehension	• given two similar two dimensional figures, describe a sequence that confirms the similarity between them.
2 Foundational Proficiency	Knows the terms: rotation, reflection, translations, dilations, similar	Retrieval	• label a given diagram using the terms: rotation, reflection, translations, dilations, similar.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: 11
Learning Target: MA.11.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving problems applying the properties of triangles and quadrilaterals (i.e. sums of angles)	Retrieval	• solve problems involving the properties of triangles and quadrilaterals.
2 Foundational Proficiency	Knows the terms: median, altitude, angle bisector, perpendicular bisector	Retrieval	• label the terms in a drawing: median, altitude, angle bisector, perpendicular bisector.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math

Measurement Topic: Geometry: Attributes and Properties

Scope Level: 12 New level 12

Learning Target: MA.12.GAP.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using theorems of triangle similarity to solve problems.	Retrieval	• Prove the Pythagorean Theorem using similar triangles
2 Foundational Proficiency	Understands the terms: geometric mean, proportional, ratio	Retrieval	Solve for lengths of similar triangles using geometric mean
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math

Measurement Topic: Geometry: Attributes and Properties

Scope Level: 13 New level 13

Learning Target: MA.13.GAP.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at making formal geometric constructions with a variety of tools and methods. Is skilled at constructing an equilateral triangle, square, and a regular hexagon inscribed in a circle.	Retrieval	• construct a figure given the required properties • copy a segment and angle • bisect a segment and angle • construct perpendicular lines, including a perpendicular bisector of a line segment • construct a line parallel to a given line through a point not on a line • Construct an equilateral triangle, square, and regular hexagon inscribed in a circle
2 Foundational Proficiency	Understands the terms: median, altitude, angle, bisector, perpendicular bisector, centroid, orthocenter, circumcenter, and incenter	Retrieval	Use the vocabulary to label the given figure construction
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: ~~12~~ 14 (no change in language, just level number)
Learning Target: MA.14.GAP.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands using theorems and multi-step reasoning to prove relationships in triangles, lines & angles and parallelograms.	Analysis	• prove theorems about lines and angles (e.g., vertical angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints). • prove theorems about triangles (e.g., measures of interior angles of a triangle sum to 180 degrees). • prove theorems about parallelograms (e.g., rectangles are parallelograms with congruent diagonals). • prove relationships in geometric figures and use congruence criteria for triangles to solve problems.
2 Foundational Proficiency	Knows the process for setting up a proof using theorems for triangles, lines, angles, and parallelograms. Knows the terms: theorem. Knows the theorems: SSS, SAS, ASA, AAS	Retrieval	• describe the process for setting up a proof to prove a theorem . define the term: theorem. • identify the theorems SSS, SAS, ASA, AAS.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: ~~13~~ 15 (no change in language, just level number)
Learning Target: MA.15.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using trigonometric ratios, ratios for special right triangles, and the Pythagorean Theorem to solve right triangles in applied problems	Comprehension	• solve problems involving ratios for special right triangles and right triangles using trigonometric functions (sine, cosine, tangent) and the Pythagorean Theorem.
2 Foundational Proficiency	Knows the terms: opposite, adjacent, hypotenuse. Knows the terms: sine, cosine, tangent and their inverses. Knows the trigonometric ratios	Retrieval	• label the parts of a right triangle using the terms: opposite, adjacent, hypotenuse. describe the terms: sine, cosine, tangent and their inverses. identify from a list the trigonometric ratios.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Attributes and Properties
Scope Level: ~~14~~ 16 (no change in language, just level number)
Learning Target: MA.16.GAP.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the relationship between inscribed angles, radii, chords, arc lengths and sectors of circles.	Comprehension	• identify and describe the relationship among inscribed angles, radii, and chords *(e.g.,the relationship between central, inscribed and circumscribed angles).*
2 Foundational Proficiency	Knows the terms: inscribed, central and circumscribed angles; tangent lines, radii, chords, secant lines, arc lengths, and areas of sectors of circles, minor arc, semi-circle	Retrieval	• label from a given diagram the terms: inscribed, central and circumscribed angles; tangent line, radii, chords, arc lengths, areas of sectors of circles, minor arc, semi-circle.
1	With help….. has the 2.0 content.		
Notes:			

Math: Geometry: Measurement

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 01
Learning Target:

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding the perimeter of a polygon	Retrieval	• calculate the perimeter of a polygon with whole number sides.
2 Foundational Proficiency	Knows the terms: length, width. Knows perimeter is an attribute of plane figures	Retrieval	• label a rectangle with the following terms: length, width. • describe and show the meaning of perimeter of plane figures.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 02
Learning Target: MA.02.GME.02.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding area by counting unit squares. Is skilled at finding area of a polygon with all right angles by decomposing them into non-overlapping rectangles.	Retrieval	• represent the area of a polygon by dividing it into unit squares. • represent a polygon as being made up of two or more non-overlapping rectangles. • find the area of each rectangle add them together to find the area of the polygon.
2 Foundational Proficiency	Knows polygons with right angles can be decomposed into non-overlapping rectangles. Knows the terms: unit square, square units, area.	Retrieval	• show with pictures how to decompose polygons into non-overlapping rectangles.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 03
Learning Target: MA.03.GME.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using perimeter and area formula for rectangles in real world and mathematical problems.	Retrieval	• solve perimeter and area problems for rectangles using the formulas.
2 Foundational Proficiency	Knows the formulas for perimeter and area of rectangles	Retrieval	• identify the formulas for perimeter and area of a rectangle.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 04
Learning Target: MA.04.GME.02.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding volume using unit cubes. Is skilled at using the formula for finding volume of a right rectangular prism with whole number edge lengths	Retrieval	• find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes. • find the volume of a right rectangular prism using the formula V = l x w x h and V = b x h for rectangular prisms.
2 Foundational Proficiency	Understands that volume is an attribute of a solid figure. Knows the terms: length, width, base, height, unit cube, cubic units	Retrieval	• show how to measure volume with unit cubes. use models or diagrams to show that volume is an attribute of a solid figure. • label a figure with the terms: length, width, base and height; unit cube; cubic units.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 05
Learning Target: MA.05.GME.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at measuring angles using a protractor Is skilled at drawing angles using a protractor.	Retrieval	• measure angles in whole number degrees using a protractor. • sketch angles of specified measures.
2 Foundational Proficiency	Knows the terms for parts of an angle: rays, endpoint, degree, vertex, angle, protractor	Retrieval	• identify the parts of an angle: rays, endpoint, vertex. • describe the terms: degree and protractor.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 06
Learning Target: MA.06.GME.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding the area of triangles, parallelograms, trapezoids, and other polygons.	Retrieval	• find the area of triangles, parallelograms, trapezoids, and other polygons.
2 Foundational Proficiency	Knows the area of right triangles, other triangles, quadrilaterals, and other polygons can be found by composing and decomposing into simpler figures. Knows the formula for finding area of triangles parallelograms and trapezoids.	Retrieval	• show how the area of right triangles, other triangles, quadrilaterals, and other polygons can be found by composing and decomposing into simpler figure. • identify the formula for finding area of triangles parallelograms and trapezoids.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 07
Learning Target: MA.07.GME.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding area and circumference of circles	Retrieval	• solve real world and mathematical problems involving area and circumference of circles.
2 Foundational Proficiency	Knows the formula for area and circumference of a circle. Know the terms: circumference, radius diameter, pi. Knows that pi can be approximated by 3.14 and 22/7. Knows the relationship between the radius and diameter of a circle	Retrieval	• give the formula for the area and circumference of a circle. • label a circle with the terms: circumference, radius diameter, pi. • show how 22/7 is equal to pi. • describe or show how the radius of a circle is related to the diameter.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 08
Learning Target: MA.08.GME.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands reproducing a scale drawing at a different scale of a geometric shape or drawing	Comprehension	• reproduce a scale drawing of a geometric shape or drawing using a different scale.
2 Foundational Proficiency	Knows the terms: scale, scale drawing	Retrieval	• identify the scale used in a scale drawing
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 09
Learning Target: MA.09.GME.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding surface area of triangular and rectangular prisms, triangular and rectangular pyramids.	Retrieval	• solve problems involving the triangular and rectangular prisms, triangular and rectangular pyramids.
2 Foundational Proficiency	Knows the terms: nets, surface area. Knows surface area of three dimensional figures can be found using nets made up of triangles and rectangles.	Retrieval	• show how a net of a figure relates to the surface area.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 10
Learning Target: MA.10.GME.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding volume of cones, cylinders, spheres, prisms and pyramids	Retrieval	• solve problems involving the volume of cones, cylinders, spheres, prisms and pyramids.
2 Foundational Proficiency	Knows the formulas for finding volume of cones, cylinders, spheres, prisms and pyramids	Retrieval	• identify what each variable represents in the formula for the volume of cones, cylinders, spheres, prisms and pyramids.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 11
Learning Target: MA.11.GME.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding surface area of cones, cylinders, spheres, prisms and pyramids	Retrieval	• solve problems involving the volume of cones, cylinders, spheres, prisms and pyramids.
2 Foundational Proficiency	Knows the formulas for finding the surface area of cones, cylinders, spheres, prisms and pyramids	Retrieval	• identify what each variable represents in the formula for the surface area of cones, cylinders, spheres, prisms and pyramids.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 12 (New Level)
Learning Target: MA.12.GME.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using the formulas for linear speed, angular speed, arc length and area of a sector.	Retrieval	• Find the area cleared by a 24" windshield wiper if the angle carved is 3pi/4 radians.
2 Foundational Proficiency	Understands pertinent information about radius, central angle, arc length in a problem situation.	Retrieval	• identify what the question is asking and write the formula to be used to solve. Make a list of the variables you are given and their values.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 13 (New Level)
Learning Target: MA.13.GME.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• derive the formula A=1/2absinC for the area of a triangle by drawing an auxillary line from a vertex perpendicular to the opposite side. • Find the area of a triangle with vertices (-8,6), (3,4), and (-1,-3). • Find the area of a quadrilateral with 4 side lengths and 4 angles given.
3 Complex Proficiency	Is skilled at finding the area of a non-right triangle using trigonometry G-SRT #9	Retrieval	• find the area of a plot of land whose boundaries are 200 yd, 350 yds and 300 yds.
2 Foundational Proficiency	Understands the different formulas that can be used to find the area of a non-right triangle.	Retrieval	• find the area of a plot of land whose boundaries are 200 yd, 350 yds and 300 yds. • which formula would you use to solve the problem.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Measurement
Scope Level: 14 (New Level)
Learning Target: MA.14.GME.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• draw the diagram and explain your reasoning based on trigonometry and geometry for the following problem: Two cities are 25 miles apart, with Martintown being due East of Mooreville. If Karma was sighted at a bearing of 31° from Mooreville and 329° from Martintown. Which cities' dogcatcher will be sent to pick up the wayward Karma?
3 Complex Proficiency	Is skilled at using the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles. G-SRT #11	Retrieval	• find the distance of the ship from point A: Starting at point A, a ship sails 2 km at a bearing of 189 degress, then turns and sails 7 km at a bearing of 317 degrees.
2 Foundational Proficiency	Is skilled at sketching a diagram of a triangle based on descriptions involving angle of elevation, angle of depression or bearings.	Retrieval	• sketch a diagram for the situation: An airplane is flying 10,500 feet above the level ground, the angle of depression from the plane to the base of a tree. How far horizontally must the plane fly to be directly above the tree?
1	With help….. has the 2.0 content.		
Notes:			

Math: Geometry: Coordinate System

Content Area: Math
Measurement Topic: Geometry: Coordinate System
Scope Level: 01
Learning Target: MA.01.GCS.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Knows the first number in an ordered pair indicates how far to travel from the origin in the direction of the horizontal axis, and the second number indicates how far to travel in the direction of the vertical axis	Comprehension	• plot given ordered pairs in quadrant 1.
2 Foundational Proficiency	Knows the terms: x-axis, y-axis. Knows x is the horizontal axis and y is the vertical axis. Knows an ordered pair is written as (x,y)	Retrieval	• label the components of the Cartesian coordinate system. • identify the numbers in the ordered pairs that represent x and the numbers that represent y.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Coordinate System
Scope Level: 02
Learning Target: MA.02.GCS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands how to plot points in any quadrant	Comprehension	• plot ordered pairs in any of the four quadrants.
2 Foundational Proficiency	Knows the quadrants and which points are plotted in each quadrant	Retrieval	• given an ordered pair, identify which quadrant it would be plotted in.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Coordinate System
Scope Level: 03
Learning Target: MA.03.GCS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at drawing polygons in the coordinate plane given coordinates for the vertices. Understands how to use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate	Comprehension	• draw polygons in the coordinate plane given coordinates for vertices. • use coordinates plotted to find the length of a side.
2 Foundational Proficiency	Knows terms: origin, polygon, vertices.	Retrieval	• identify from a picture the origin and the vertices of a given polygon.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Geometry: Coordinate System
Scope Level: 04
Learning Target: MA.04.GCS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands using coordinates to find perimeter of polygons and areas of triangles and rectangles Understands using simple geometric theorems on a coordinate plane	Analysis	• use the model of the coordinate plane to: prove simple geometric theorems. • find the perimeter and area of a triangle and a rectangle. DR
2 Foundational Proficiency	Knows the term: theorem, Pythagorean Theorem. Knows distance formula and the slopes of parallel & perpendicular lines	Retrieval	• describe what a theorem is and when it is used. state the Pythagorean Theorem. • identify the distance formula and the slope of parallel and perpendicular lines.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math

Measurement Topic: Geometry: Coordinate System

Scope Level: 05 (New Level)

Learning Target: MA.05.GCS.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at determining if two figures on the coordinate plane are similar by finding the measurement of corresponding sides and angles. Is skilled at identifying the scale factor of two similar figures on the coordinate plane and identifying the transformation sequence between them.	Retrieval	• FInd the scale factor between two figures on the coordinate plane using the distance formula and/or angle measures. • Given an image and a preimage on a coordinate plane, create and defend the transformation sequence that was used to produce the image.
2 Foundational Proficiency	Is skilled at completing transformations on the coordinate plane. Understands the terms: dilation, scale factor, similarity and corresponding.	Retrieval	• draw an image given a preimage and a transformation sequence.
1	With help….. has the 2.0 content.		
Notes:			

Math: Algebra: Expressions, Equations & Inequalities

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 01
Learning Target: MA.01.AEE.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands written expressions can be written as a numeric expression or equation.	Comprehension	• convert a written expression into a numerical expression (ie: x is three less than y means x = y-3) • convert a numerical expression into a written expression (ie: x = y-3 means x is three less than y) • write, read and evaluate numerical expressions in which letters stand for numbers.
2 Foundational Proficiency	Know the terms: expression, substitution, algebraic expression, equation Knows the parts of an expression using mathematical terms, such as variable, base, coefficient, exponent, constant	Retrieval	• identify parts of an expression using mathematical terms.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 02
Learning Target: MA.02.AEE.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving an equation as a process of substitution that makes the statement true.	Retrieval	• use substitution to determine whether a given number in a specified set makes an equation correct.
2 Foundational Proficiency	Knows that a variable represents an unknown value (concept). Know terms: set, solution, solution set, equation.	Retrieval	• write and read numerical expressions in which letters stand for numbers. • define and give an example of the terms: set, solution, solution set, equation and inequality.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 03
Learning Target: MA.03.AEE.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the solution to an inequality results in an infinite set of answers ~~as~~ plotted on a number line	Comprehension	• use substitution to describe the effects of whether a given number in a specified set make an inequality true. • represent the solution to an inequality on a number line.
2 Foundational Proficiency	Know terms: inequality. Is skilled at solving an inequality as a process of substitution that makes the statement true.	Retrieval	• write and read numerical expressions in which letters stand for numbers. • define and give an example of the terms: set, solution, solution set, and inequality.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 04
Learning Target: MA.04.AEE.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving one step equations using integers. Is skilled at solving one-step inequalities using integers.	Retrieval	• solving equations using integers to solve equations in the form of x+p=q.
2 Foundational Proficiency	Know the terms: inverse operations, properties of equality	Retrieval	• identify the property of equality used in each step of the solution process (with equation solved for student).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 05
Learning Target: MA.05.AEE.03.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving one step equations using rational numbers. Is skilled at solving one-step inequalities using rational numbers.	Retrieval	• solving equations using rational numbers to solve equations in the form of x+p=q.
2 Foundational Proficiency	Know the term: rational number	Retrieval	• describe what a rational number is.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 06
Learning Target: MA.06.AEE.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• use mental computation and estimation strategies to determine if a solution for a given problem is reasonable.
3 Complex Proficiency	Is skilled at adding, subtracting, factoring (numbers), & expanding (distributive property) linear expressions with rational coefficients using the properties of operations. (i.e. commutative, associative, etc.)	Retrieval	• solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$ where p, q and r are specific rational numbers.
2 Foundational Proficiency	Know the terms: commutative property, associative property, distributive property, factor, expand, linear expression, coefficient.	Retrieval	• define and give examples of the terms: commutative property, associative property, distributive property, factor, expand, linear expression, coefficient.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 07
Learning Target: MA.07.AEE.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• justify through algebraic proof the process for solving multi-step linear equations. (A-REI.1)
3 Complex Proficiency	Understand the process for solving multi-step equations and inequalities. (using algebraic properties).	Analysis	• solve multi-step equations using algebraic properties (commutative property, associative property, distributive property). DR • solve word problems of the form px+q>r or p(x+q)<r where p, q and r are specific rational numbers. DR
2 Foundational Proficiency	Know terms: solution, no solution, identity (infinitely many solutions). Knows algebraic properties: identity for addition/multiplication, properties of equality, multiplicative property of zero, property of reciprocals, additive inverse, etc.	Retrieval	• define and give examples of the terms: solution, no solution and identify (infinitely many solutions). • identify algebraic properties: identity for addition/multiplication, properties of equality, multiplicative property of zero, property of reciprocals, additive inverse.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 08
Learning Target: MA.08.AEE.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• develop a strategy to model and solve real-life situations using systems of linear equations through substitution, cancellation, and estimating solutions by graphing the equations.
3 Complex Proficiency	Is skilled at solving systems of two linear equations through substitution or cancellation (elimination) with one solution, no solution or infinitely many solutions	Retrieval	• solve systems of two linear equations through substitution, cancellation, and estimating solutions by graphing the equations.
2 Foundational Proficiency	Know terms: substitution, cancellation, intersection, no solution (parallel), identity (same line)	Retrieval	• define and give an example of the terms: substitution, cancellation, intersection, no solution (parallel), identity (same line).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 09
Learning Target: MA.09.AEE.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		• justify through algebraic proof the process for solving quadratic equations.
3 Complex Proficiency	Is skilled at solving systems of two linear inequalities through graphing	Retrieval	• solve systems of inequalities through substitution, cancellation, and estimating solutions by graphing the equations.
2 Foundational Proficiency	Know terms: substitution, cancellation, intersection, no solution (parallel), identity (same line).	Retrieval	• define and give an example of the terms: substitution, cancellation, intersection, no solution (parallel), identity (same line).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 10
Learning Target: MA.10.AEE.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• justify through algebraic proof the process for solving quadratic equations.
3 Complex Proficiency	Is skilled at performing operations on polynomials (add, subtract, multiply)	Retrieval	• simplify polynomials.
2 Foundational Proficiency	Know terms: polynomial (types), names by degree (quadratic, cubic, etc.)	Retrieval	• define and give examples of the terms: polynomial (types), names by degree (quadratic, cubic, etc.)
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 11
Learning Target: MA.11.AEE.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• justify through algebraic proof the process for solving quadratic equations.
3 Complex Proficiency	Is skilled at solving a quadratic equation through factoring, quadratic formula, and technology	Retrieval	• factor or use the quadratic formula on a quadratic expression to reveal the zeros of the function it defines. • complete the square in a quadratic expression to reveal the maximum and minimum value of the function it defines.
2 Foundational Proficiency	Know terms: quadratic formula, difference of squares, perfect square trinomial, greatest common factor, zeros, roots	Retrieval	• define and give examples of the terms: quadratic formula, difference of squares, perfect square trinomial, greatest common factor, zeros, roots
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 12 (New Level)
Learning Target: **MA.12.AEE.01.01**

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving for a variable using inverse operations involving nth roots and exponents. Is skilled at performing operations on and simplifying radical expressions.	Comprehension	• solve for a side length of a triangle using the Pythagorean Theorem and give the answer in simplest form. • Find the exact distance between two points on the coordinate plane and give the answer in simplest radical form.
2 Foundational Proficiency	Is skilled at prime factorization. Understands perfect squares.	Retrieval	• Break down a number into its prime factors • complete a factor tree • create a list of perfect squares
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 13 (New Level)
Learning Target: MA.13.AEE.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	Create a real life situation that requires an absolute value equation and solve for an unknown value
3 Complex Proficiency	Is skilled at solving equations and inequalities involving absolute values.	Retrieval	• solve the absolute value equation 3-|2-3x|=-7
2 Foundational Proficiency	Understands the meaning of absolute value Is skilled at interpreting the meaning of an absolute value equation in words	Retrieval	• match a list of word problems with the corresponding absolute value equations
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 14 (New Level)
Learning Target: MA.14.AEE.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving polynomial functions Is skilled at writing polynomial functions in factored form	Retrieval	• Solve the polynomial equation: x^3-7x^2+5x+21=0 showing all work. Give answers in exact form
2 Foundational Proficiency	Understands how to use the Intermediate Value Theorem, Rational Zero Test and Descartes's Rule of Signs in identifying zeros of a polynomial function. Understands how to use a graphing utility to identify zeros of a polynomial function. Understands how to use synthetic division to calculate zeros of a polynomial function. Understands the complex zeros of a polynomial with real coefficients come in conjugate pairs. Understands the term: complex conjugate	Retrieval	• Given the polynomial f(x)= 6x^3-4x^2+3x-2: list the possible rational zeros using the Rational Zero Test • Describe the possible negative and positive real zeros using the Descartes's Rule of Signs • Use the Intermediate Value Theorem to find the interval of length 1 in which the polynomial is guranteed to have a zero • Given one complex zero of one polynomial, find all other zeros.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 15 (New Level)
Learning Target: MA.15.AEE.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at modeling and solving radical equations	Retrieval	• Solve the equation: 3-2√(5-2x)=-3 and check your solution
2 Foundational Proficiency	Understands the term: extraneous solution Understands the domain of a radical expression	Retrieval	• Explain and identify extraneous solutions • Determine the domain of: f(x)=4-√(5-6x)
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 16 (New Level)
Learning Target: MA.16.AEE.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving exponential and logarithmic functions.	Comprehension	• Solve: 3e^x - 2=9 • Solve: log (2x-1)=3 and 3-2ln(x+1)= - 3
2 Foundational Proficiency	Knows the change of base formula and properties of logarithms. Is skilled at using the properties of logarithms and exponents to switch between exponential form and logarithmic form, condense and expand logarithmic expressions.	Retrieval	• evaluate: log of 25 base 5 • Condense into an expression with one natural log: 3lnx-2ln • change the logarithmic equation 4lnx=7 into an exponential equation.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Expressions, Equations & Inequalities
Scope Level: 17 (New Level)
Learning Target: MA.17.AEE.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at modeling and solving real-life problems using logs and exponentials.	Comprehension	• write a model to determine how long it will take a population of 100 fruit flies to reach 1000 flies if the population doubles every 2 days. • calculate the difference If $3000 is invested at 3.65% interest compounded quarterly and the same amount is invested at the same interest rate compounded continuously.
2 Foundational Proficiency	Knows the terms: 1/2-life, compounding, double time, continuous compounding,	Retrieval	• define the following terms: 1/2-life, compounding, double time, continuous compounding,
1	With help….. has the 2.0 content.		
Notes:			

Math: Algebra: Foundational Algebra

Content Area: Math
Measurement Topic: Algebra: Foundational Algebra
Scope Level: 01
Learning Target: MA.01.AFA.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand patterns.	Analysis	• generate and extend patterns (e.g. ABAB, AABB, etc.).
2 Foundational Proficiency	Knows the term: pattern	Retrieval	• define and recognize a pattern.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Foundational Algebra
Scope Level: 02
Learning Target: MA.02.AFA.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands how to generate a sequence given a rule	Analysis	• generate a number pattern that follows a given rule and identify features of the pattern that were not explicit in the rule (e.g. function box, in-out box). DR
2 Foundational Proficiency	Knows the terms: sequence, rule.	Retrieval	• define and give an example of the terms: sequence, rule.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Foundational Algebra
Scope Level: 03
Learning Target: MA.03.AFA.04.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand basic order of operations for addition, subtraction, multiplication, division	Analysis	• simplify multi-step problems/word problems posed with whole numbers and having whole number answers using four operations. DR
2 Foundational Proficiency	Knows the rules for basic order of operations	Retrieval	• explain the rules for the basic order of operations and give an example.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Foundational Algebra
Scope Level: 04
Learning Target: MA.04.AFA.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand how to use parentheses, brackets, or braces to evaluate numerical expressions	Analysis	• use parentheses, brackets, or braces in numerical expressions to evaluate these expressions. DR
2 Foundational Proficiency	Know the terms: parentheses, brackets, braces, and numerical expression	Retrieval	• define and give an example of the terms: parentheses, brackets, braces and numerical expression.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Foundational Algebra
Scope Level: 05
Learning Target: MA.05.AFA.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands how to use exponents to evaluate numerical expressions.	Analysis	• use exponents in numerical expressions to evaluate the expressions. DR
2 Foundational Proficiency	Knows the terms: exponent	Retrieval	• define and give an example of the term: exponent.
1	With help….. has the 2.0 content.		
Notes:			

Math: Algebra: Interpreting Functions

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 01
Learning Target: MA.01.AIF.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand that a function is a rule that assigns to each input (domain) exactly one output (range). Understand the concepts behind rate of change, average rate of change, and initial value for a linear function with regards to the given situation it models	Comprehension	• identify the domain and range when given a function. • calculate average rate of change of a function over a specified interval. • estimate rate of change from a graph.
2 Foundational Proficiency	Terms to Know: Function, Domain (Input), Range (Output), Ordered Pair, Linear Function, Nonlinear Function, rate of change, slope Knows the difference between a relation and a function.	Retrieval	• define and give an example of the terms: Function, Domain (Input), Range (Output), Ordered Pair, Linear Function, Nonlinear Function, rate of change, slope. • categorizes a graph/table/mapping/equation as a relation or a function.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 02
Learning Target: MA.02.AIF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands a function can be represented algebraically, graphically, numerically or by verbal description.	Comprehension	• represent a function in a variety of forms.
2 Foundational Proficiency	Terms to Know: standard form of a line, slope-intercept form of a line, point-slope form of a line, direct variation, indirect variation	Retrieval	• define and give an example of the terms: standard form of a line, slope-intercept form of a line, point-slope form of a line, direct variation, indirect variation.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 03
Learning Target: MA.03.AIF.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• create and identify similarities and differences between two functions with different representations. CR • compare two functions with different representations (algebraically, graphically, numerically, in tables or by verbal description). CR
3 Complex Proficiency	Understand the functional relationship between two quantities in a graph.	Comprehension	• describe the relationship between two quantities by analyzing a graph (i.e. as x increases, y decreases).
2 Foundational Proficiency	Terms to Know: Increasing (positive slope), Decreasing (negative slope), Zero Slope, No Slope (undefined), qualitative, y=f(x),	Retrieval	• define and give examples of the terms: Increasing (positive slope), Decreasing (negative slope), Zero Slope, No Slope (undefined), qualitative, y=f(x),
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 04
Learning Target: MA.04.AIF.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• create and identify similarities and differences between two functions with different representations. CR • compare two functions with different representations (algebraically, graphically, numerically, in tables or by verbal description). CR
3 Complex Proficiency	Understand the functional relationships between two linear functions with the same representation.	Analysis	• identify similarities and differences between two functions with the same representation (algebraically, graphically, numerically in tables or by verbal description).
2 Foundational Proficiency	Knows that a function can be represented algebraically, graphically, numerically, or by verbal description.	Retrieval	• represent a function in a variety of forms.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 05
Learning Target: MA.05.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• after determining from a residual plot of car weight versus fuel efficiency that re-expression is needed to achieve linearity, select the appropriate transformation and transform the data. • create and interpret a residual plot of car weight versus fuel efficiency. • use R2 to conclude how much of the variation in one variable can be accounted for by a straight-line relationship with another variable.
3 Complex Proficiency	Is skilled at constructing and interpreting scatterplots between two sets of linked data. Is skilled at solving problems using the linear model to interpret the slope and intercept.	Retrieval	• construct and interpret scatterplots between two sets of linked data (for example, height and weight). • solve bivariate measurement problems by using the linear model and interpret the slope and intercept.
2 Foundational Proficiency	Knows the terms: scatterplot, bivariate measurement, slope, intercept, correlation coefficient, linear fit, linear models, least-squares regression line. Understands straight lines can be used to represent the relationships between two quantitative variables.	Retrieval	• define and give an example of the terms: scatterplot, bivariate measurement, slope, intercept, correlation coefficient, linear fit, linear models, least-squares regression line. • show how straight lines can be used to represent the relationships between two quantitative variables.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 06
Learning Target: MA.06.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand function notation and the domain of a function.	Comprehension	• determine an appropriate domain given the quantitative relationship it describes.
2 Foundational Proficiency	Terms to Know: Function Notation	Retrieval	• define and give an example for the terms: function notation.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 07
Learning Target: MA.07.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		• describe the behavior of the graph of a polynomial function near a zero with a multiplicity 2 (or 3 or 4) Write the equation for and sketch a graph of a polynomial function with given zeros and the sign of the leading coefficient
3 Complex Proficiency	Understand key features of graphs and tables in a functional relationship between two quantities.	Analysis	• interpret the key features of the given function (intervals where increasing, decreasing, relative extrema, symmetry, end behavior,...) DR
2 Foundational Proficiency	Terms to Know: relative extrema, maximum, minimum, intercepts, symmetry	Retrieval	• define and give an example for the terms: relative extrema, maximum, minimum, intercepts, symmetry
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 08
Learning Target: MA.08.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the relationship between the equations and the graphs of linear and absolute value functions.	Comprehension	• given an equation, graph the function and show key features of the graph (by hand in simple cases and using technology for more complicated cases).
2 Foundational Proficiency	Terms to Know: Absolute Value	Retrieval	• write an equation of an absolute value function.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 09
Learning Target: MA.09.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the relationship between the equations and the graphs of quadratic and square root functions.	Comprehension	• given an equation, graph the function and show key features of the graph (by hand in simple cases and using technology for more complicated cases).
2 Foundational Proficiency	Terms to Know: quadratic, square root	Retrieval	• write an equation of a quadratic function.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 10
Learning Target: MA.10.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the relationship between the equations and the graphs of exponential growth and decay functions.	Comprehension	• given an equation, graph the function and show key features of the graph (by hand in simple cases and using technology for more complicated cases).
2 Foundational Proficiency	Terms to Know: exponential growth and decay	Retrieval	• write an equation of an exponential function.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 11 New Level 11
Learning Target: MA.11.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		* restrict the domain of a function so that it is one-to one and then write the equation for its inverse
3 Complex Proficiency	Understand inverse functions	Comprehension	• write an equation for an inverse function. Show that two functions, f(x) and g(x) are inverse by showing f(g(x)) = g(f(x))=x.
2 Foundational Proficiency	Understand the terms: on-to-one function, composition of functions	Retrieval	• describe the relationship between the graph of a function and its inverse. • match the graph of a function and the graph of its inverse.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 12 New Level 12
Learning Target: MA.12.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at graphing polynomial functions, identifying zeros when factorizations are available and showing end behavior.	Retrieval	• Given an equation of a polynomial function which is factorable, identify the real and complex zeros and sketch a graph.
2 Foundational Proficiency	Understand the terms: even degree, odd degree, and behavior, multiplicity of zeros, increasing and decreasing relative extrema, absolute extrema. Understand the relationship between the factors, zeros, and x-intercepts of a polynomial function.	Retrieval	• Given an equation of a polynomial function, identify the degree. • Given an equation of a polynomial (both in factored form and expanded/standard form), identify the zeros and their multiplicities. • Given the graph of a polynomial function identify intervals where the graph is increasing or decreasing, identify and classify all extrema.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 13 New level 13
Learning Target: MA.13.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at modeling and interpreting models of linear and piecewise defined functions in a variety of situations	Retrieval	• graph and write a linear equation of a situation • describe the meaning of parts of the equation • make predictions based on the model
2 Foundational Proficiency	Understand: rate of change, slope, process of writing a linear equation, appropriate domain and range for a situation.	Retrieval	• describe the domain and range for a given situation • calculate the slope/average rate of change for a situation over a closed interval and describe what it means in terms of the problem.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 14 New Level 14
Learning Target: MA.14.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding the optimal solution graphically and algebraically based on a number of constraints and justify the solution in words.	Retrieval	• solve problems, such as: • *determine the number of spruce trees that should be planted to maximize the carbon dioxide absorption given the following scenario: You have $2100. Spruce trees are $30, maple trees are $40. Spruce trees take up to 600 sq. ft and maple trees take up to 900 sq. ft. You have 45,000 sq. ft. of land available. Spruce trees absorb 650 pounds per year if CO2. Maple trees absorb 300 pounds of year of CO2 per year.*
2 Foundational Proficiency	Understand the terms: constraints, feasible region, vertices Understand defining variables in a problem situation. Is skilled at writing inequalities, graphing inequalities, determining vertices of feasible region. Understand the process of substituting vertices into optimization function to determine which vertex gives the desired extreme value.	Retrieval	• Given a situation, write a system of inequalities, define the variable(s) used and graph the system of inequalities. Given the graph of a system of inequalities give the vertices of the feasible region. Describe the process for determining which (if any) vertex of a feasible region will give you the desired extreme value.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 15 New level 15
Learning Target: MA.15.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand graphing rational functions, identifying zeros and asymptotes when suitable factorizations are available, and represents end behavior.	Comprehension	• sketch a graph and label key features • identify all zeros, removable and essential discontinuities, horizontal or oblique asymptotes for y=(2x-1)(x^2-4)/(x^2+3x-10).
2 Foundational Proficiency	Understand the terms: horizontal asymptotes, oblique asymptotes, removable discontinuities (holes) and essential discontinuities.	Retrieval	• determine the equation of all asymptotes of the function y=(2x-1)(x^2-4)/(x^2+3x-10). • given a list of rational functions, sort them into three groups: HA of y=0, HA of y=another number, no HA.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Interpreting Functions
Scope Level: 16 New level 16
Learning Target: MA.16.AIF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the relationship between the equations and graphs of logarithmic functions.	Comprehension	• graph a given equation for a logarithmic function
2 Foundational Proficiency	Understand domain, range and asymptotes of logarithmic functions. Understand logarithmic and exponential functions are inverse of each other. Understand the terms: common log and natural log.	Retrieval	• given an equation of a logarithmic function, determine the domain, range and the equation for the asymptote. • describe the relationship between the graph of y=ln(x) and y=e^x.
1	With help….. has the 2.0 content.		
Notes:			

Math: Algebra: Building Functions

Content Area: Math
Measurement Topic: Algebra: Building Functions
Scope Level: 01
Learning Target: MA.01.ABS.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the relationship between independent and dependent variables as representative of real-life situations Understand the connection between the independent and dependent variables within equations.	Comprehension	• represent real life situations that show the relationship between the dependent variable and independent variable using graphs and/or tables (example: speed vs time). • write an equation to express one quantity, in terms of the other quantity.
2 Foundational Proficiency	Know terms: independent variable & dependent variable	Retrieval	• define and give examples of the terms: independent variable, dependent variable.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Building Functions
Scope Level: 02
Learning Target: MA.02.ABS.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand new functions can be created from existing functions	Comprehension	• explain the effects on the graph of replacing f(x) by f(x) + k, kf(x), and f(x+k)
2 Foundational Proficiency	Know the terms: dilation, horizontal translation, vertical translation	Retrieval	• define the terms dilation, horizontal translation, vertical translation.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Building Functions
Scope Level: 03 New level 3
Learning Target: MA.03.ABS.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at adding, subtracting, multiplying and dividing algebraic fractions	Retrieval	• find the sum (f+g)(x) if x=3/(x-2) and g(x)=5x/(x^2+x-6)
2 Foundational Proficiency	Is skilled at finding the common denominator between two or more rational expressions. Understand dividing two rational expressions is the same as multiplying by the reciprocal of the divisor.	Retrieval	• find the common denominator between 3/(x-2) and 5/(x^2+x-6). • rewrite ((4x/(x+6))+(x^2-36)/(3x^2)) using multiplication rather than division.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Building Functions
Scope Level: 04 New level 4
Learning Target: MA.04.ABS.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand modeling and applying compositions and operations on functions algebraically	Analysis	• determine which to apply first, the discount or percent off of a price • write an algebraic description and justify your conclusion
2 Foundational Proficiency	Understand the term: composite Understand a process for rewriting the individual parts of a word problem into symbols involving function notation.	Comprehension	• change the given word problem into an algebraic equation/ expression and define/explain what each variable/operation symbol represents in the problem.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Algebra: Building Functions
Scope Level: 05 New level 5
Learning Target: MA.05.ABS.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand new functions can be created from existing functions using transformations (horizontal and vertical sketches, shrinks, shifts, reflections) Understand the impact of a transformation on a graph, an equation and a table of values for a function	Analysis	• given the graph of f(x), a piecewise defined function, sketch the graph of 2f(3-x). • given the equation of a transformed function give the equation of the parent function and describe the transformations that have taken place. • write the equation for a given graph of a transformed function.
2 Foundational Proficiency	Understand the terms: stretch, shrink, reflection Understand the relationship between a graph of each transformation (addition, subtraction, multiplication and/or division by a constant) and the equation of a parent function.	Comprehension	• describe the transformations that have taken place to transform the graph of f(x)=x^2 to the graph of f(x)=2{[(x-3)]}^2+4
1	With help….. has the 2.0 content.		
Notes:			

Math: Statistics & Probability: Data Analysis

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 01
Learning Target: MA.01.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands information gathered from immediate surroundings can be represented in a variety of ways.	Comprehension	• represent data collected as a result of a question asked, e.g. how many students are taking hot lunch and cold lunch today? Or how many students are wearing sneakers?, etc)
2 Foundational Proficiency	Knows responses to a question can generate data.	Retrieval	• describe how the answers to a question by the students in the class provides information.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 02
Learning Target: MA.02.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands a simple set of data can be organized and represented in a variety of ways.	Comprehension	• draw a picture or create a model to represent a simple set of data and explain the meaning of that data. For example, "Within these three categories, how many students ride the bus, walk to school, or ride in a car?"
2 Foundational Proficiency	Knows the terms: title, label. Understands the concepts of organizing and representing data.	Retrieval	• identify the title and labels of a graph. • describe how the data in a graph is organized.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 03
Learning Target: MA.03.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• compare distributions using bar charts. CR
3 Complex Proficiency	Understands data can be represented and interpreted using a line plot (dotplot) using whole units and picture graphs and bar graphs.	Comprehension	• create a line plot of objects measured. • create a picture or bar graph. For example, "within these four categories of color (red, yellow, blue, orange), what is your favorite color?"
2 Foundational Proficiency	Knows the terms: line plot, dotplot, picture graph, bar graph	Retrieval	• define and give an example of the terms: line plot, dotplot, picture graph, bar graph.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 04
Learning Target: MA.04.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why scale needs to be consistent.
3 Complex Proficiency	Understands scale in a picture graph and bar graph affects how the data is represented and interpreted.	Comprehension	• draw a bar graph in which each square in a bar graph might represent 5 pets in various categories (for example, dogs, cats, mice, fish, snakes).
2 Foundational Proficiency	Knows the terms: scaled picture graph, scaled bar graph, & key.	Retrieval	• define and give an example of the terms: scaled picture graph, scaled bar graph, & key.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 05
Learning Target: MA.05.SDA.02.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• identify when it is appropriate to use pie charts, and create and interpret a pie chart from real-world data, using computer software and by hand. IR
3 Complex Proficiency	Understands data can be represented and interpreted using pie charts (circle graphs).	Analysis	• create and interpret a pie chart using a data set. IR
2 Foundational Proficiency	Knows the terms: pie chart, circle graph	Comprehension	• show what a pie chart or circle graph is and when it might be used to show data.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 06
Learning Target: MA.06.SDA.03.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• identify when it is appropriate to use time plots, and create and interpret a time plot from real-world data, using computer software and by hand. IR
3 Complex Proficiency	Understands data can be represented and interpreted using a line graph (timeplot).	Analysis	• create and interpret a data set using a line graph. IR
2 Foundational Proficiency	Knows the terms min, max, range, axes, line graph, timeplot, independent (input), dependent (output).	Retrieval	• explain the terms: min, max, range, axes, line graph, timeplot in a data set.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 07
Learning Target: MA.07.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• compare data distributions in back-to-back stemplots. CR
3 Complex Proficiency	Understand data can be represented and interpreted using stemplots.	Analysis	• create and interpret a data set using a stemplot. IR
2 Foundational Proficiency	Knows the terms: stem and leaf.	Retrieval	• describe the terms: stem and leaf.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 08
Learning Target: MA.08.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• compare distributions in parallel boxplots. CR
3 Complex Proficiency	Understands data can be represented and interpreted using boxplots.	Analysis	• create and interpret a data set using a boxplot. IR
2 Foundational Proficiency	Knows the terms: median, interquartile range (IQR), outliers.	Comprehension	• show the parts of a boxplot, including: median, IQR, outliers.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 09
Learning Target: MA.09.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• construct and interpret graphical displays in cumulative frequency plots. IR
3 Complex Proficiency	Understands data can be represented and interpreted using histograms.	Analysis	• create and interpret a data set using a histogram. IR
2 Foundational Proficiency	Knows the terms: frequency, intervals Understands the concept of dividing a set of data into intervals.	Comprehension	• describe what frequency & interval are. • show how to divide a set of data into intervals.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 10
Learning Target: MA.10.SDA.01.04

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Comprehension	• describe the effects on mean, standard deviation, median and quartiles of multiplying by or adding a constant.
3 Complex Proficiency	Is skilled at summarizing numerical data sets by using quantitative measures including median, mean, inter-quartile range.	Retrieval	• summarizes the data set by finding quantitative measures including median, mean, and inter-quartile range.
2 Foundational Proficiency	Understands the data collected with a statistical question has a distribution of data described by its center, spread and overall shape Knows the terms: mean, measures of central tendency, measures of variability, distribution.	Comprehension	• summarize a data set describing the center, spread, and overall shape.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 11
Learning Target: MA.11.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• use simulation to investigate model random real-world behavior, for example, use computer software to investigate how many boxes of cereal one would need to buy to obtain a full set of sports cards. IR
3 Complex Proficiency	Understands data from a random sample can help draw generalizations about a population.	Analysis	• from graphical representations, distinguish informal inferences about two populations. ID
2 Foundational Proficiency	Understands how to choose the appropriate visual representation for the given data set.	Analysis	• compare and contrast the similarities and differences between visual representations of a data set. CR
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Data Analysis
Scope Level: 12
Learning Target: MA.12.SDA.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• using the below result, estimate and interpret the population percentage who would have an IQ of 125 or higher. IR • using the below data, estimate and interpret the IQ score a student would have if he/she was in the 90th percentile. IR • assuming a normal distribution of IQ scores for 7th grade students with a mean of 111 and standard deviation of 11, calculate and interpret the z-score for a student with an IQ of 125. IR
3 Complex Proficiency	Understands how to use statistics to represent a distribution of data. Understands the mean and standard deviation of a data set to fits a normal distribution and to can estimate the population percentages.	Analysis	• decide whether to use mean and standard deviation, or median and interquartile range for a given data distribution. • use the mean and standard deviation of a data set to fit a normal distribution and to estimate the population percentages. IR
2 Foundational Proficiency	Knows the terms: data distribution, normal distribution, categorical and quantitative variables, ~~linear models, correlation coefficient, linear fit~~, standard deviation, density curve, percentiles, standardized scores, z-scores.	Retrieval	• define and give an example of the terms: data distribution, normal distribution, categorical and quantitative variables, and standard deviation, density curve, percentiles, standardized scores, z-scores..
1	With help….. has the 2.0 content.		
Notes:			

Math: Statistics & Probability: Population Parameters

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 01
Learning Target: MA.01.SPPP.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Comprehension	• describe assumptions and conditions needed to make statements about a population appropriate.
3 Complex Proficiency	Understands the logic, meaning and properties of confidence intervals.	Comprehension	• describe the logic, meaning and properties of confidence intervals.
2 Foundational Proficiency	Knows the terms: confidence interval, confidence level, confidence statement, critical z, margin of error, p-hat, significance level.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 02
Learning Target: MA.02.SPPP.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• calculate margin of error when sample size changes; and • calculate margin of error when level of confidence changes; and • calculate sample size when given margin of error and confidence level.
3 Complex Proficiency	Understands how the margin of error of a confidence interval changes with the sample size and level of confidence	Comprehension	• describe how the margin of error of a confidence interval changes with the sample size and level of confidence.
2 Foundational Proficiency	Knows what is included in margin of error and what it tells us.	Retrieval	• describe in simple language what is included in margin of error and what it tells us.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 03
Learning Target: MA.03.SPPP.03.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why we compute a confidence interval for a proportion.
3 Complex Proficiency	Understands the rules of inference for a confidence interval for a proportion.	Knowledge Utilization	• select the appropriate formula, add and subtract the margin of error to and from *p* and interpret the result in context.
2 Foundational Proficiency	Understands standard deviation and margin of error for a sample proportion.	Knowledge Utilization	• select the correct formula, compute standard deviation, substitute where p is unknown, and multiply by the number of standard deviations for the level of confidence to obtain the margin of error.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 04
Learning Target: MA.04.SPPP.04.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• explain when it is appropriate to use significance testing.
3 Complex Proficiency	Understands the logic of significance testing, the logic of null and alternative hypotheses, and the differences between one- and two-sided tests.	Analysis	• explain the logic of significance testing, the logic of null and alternative hypotheses, and the differences between one- and two-sided tests.
2 Foundational Proficiency	Knows terms: alpha level, alternative hypothesis, hypothesis testing, inference, null hypothesis, one-sided hypothesis test, p-value, significance test, two-sided hypothesis test.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 05
Learning Target: MA.05.SPPP.05.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Comprehension	• describe why p-value is a conditional probability and why smaller p-values are strong evidence against the null.
3 Complex Proficiency	Understands the basic properties and meaning of p-value.	Comprehension	• describe the basic properties and meaning of p-value in non-technical language.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 06
Learning Target: MA.06.SPPP.06.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain the concepts of power and Type I and Type II Errors and the impact of such errors in real-world situations.
3 Complex Proficiency	Is skilled at generating and testing hypotheses for a proportion using a data collection.	Knowledge Utilization	• given that a Department of Motor Vehicles claims that 80% of candidates pass their driving tests, but a newspaper survey of 90 randomly selected teens finds only 61 who passed, develop appropriate hypotheses to test whether the passing rate is lower than DMV reported, conduct a one-proportion z-test, and draw an appropriate conclusion in context.
2 Foundational Proficiency	Knows terms: power, Type I Error, Type II Error.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 07
Learning Target: MA.07.SPPP.07.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why the formula for a confidence interval for a difference between two proportions is used.
3 Complex Proficiency	Understands the rules of inference for a confidence interval for a difference between two proportions.	Knowledge Utilization	• given a 95% confidence level and p1 of .6, n1 of 122 of males who exercise and p2 of .3, n2 of 143 of females who exercise, select the appropriate formula, compute a confidence interval, and interpret the result in context.
2 Foundational Proficiency	Understands the rules of inference for a confidence interval for a difference between two proportions.	Knowledge Utilization	• given a 95% confidence level and p1 of .6, n1 of 122 of males who exercise and p2 of .3, n2 of 143 of females who exercise, select the appropriate formula, compute a confidence interval, and interpret the result in context.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 08
Learning Target: MA.08.SPPP.08.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why pooling is used in a hypothesis test for a difference between two proportions.
3 Complex Proficiency	Is skilled at generating and testing hypotheses for a difference between two proportions using data collections.	Knowledge Utilization	• given that a survey of 886 randomly selected teens finds that 57% of the 248 boys posted profiles, while 70% of the 256 girls did so, develop appropriate hypotheses to test whether there is a difference in profile posting between girls and boys, conduct an appropriate two-proportion z-test, and draw a conclusion in context.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 09
Learning Target: MA.09.SPPP.09.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why a confidence interval for a mean is used.
3 Complex Proficiency	Understands the rules of inference for a confidence interval for a mean.	Knowledge Utilization	• given a 95% confidence level, $\mu = 3.4$ and $s = 1.1$ for the average number of cups of coffee college students drink per day in our sample of 1001 college students, select the appropriate formulas, compute standard deviation and multiply by the number of standard deviations for the level of confidence to obtain the margin of error, add and subtract the margin of error to and from x and interpret the result in context.
2 Foundational Proficiency	Knows term: critical t.	Retrieval	• define and give an example.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 10
Learning Target: MA.10.SPPP.10.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why the standard deviation for a mean is different from that for a population proportion.
3 Complex Proficiency	Is skilled at generating and testing hypotheses for a mean using a data collection.	Knowledge Utilization	• given that a test of 150 farm-raised salmon showed Mirex to be 0.0913 parts per million, with standard deviation of 0.0495 ppm, develop appropriate hypotheses to test whether the contamination level is beyond that permitted by the EPA, conduct a one-sample t-test, and draw an appropriate conclusion in context.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 11
Learning Target: MA.11.SPPP.11.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why a confidence interval for a difference between two means is used.
3 Complex Proficiency	Understands the rules of inference for a confidence interval for a difference between two means.	Knowledge Utilization	• given a 95% confidence level with μB = 206 minutes, sB = 10.3 minutes, nB = 6 brand name batteries and μG = 187.4 minutes, sG = 14.6 minutes, nG = 6 generic batteries, select the appropriate formula, times it by t*, compute a confidence interval and interpret the result in context.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 12
Learning Target:

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why we don't pool for a difference between two means.
3 Complex Proficiency	Is skilled at generating and testing hypotheses for a difference between two means (unpaired and paired) using data collections.	Knowledge Utilization	• given that a study of 15,109 randomly selected seniors finds that they had a mean science test score of 147 points two years ago and seniors now averaged 150 points, develop appropriate hypotheses to test whether the scores have declined significantly, conduct an unpaired two-sample t-test, and draw an appropriate conclusion in context; and • given two flavors of yoghurt by several companies, conduct a t-test for the difference of means and draw an appropriate conclusion in context.
2 Foundational Proficiency	Knows term: Paired means.	Retrieval	• defines and gives an example.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 13
Learning Target: MA.13.SPPP.13.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• is skilled at generating and testing hypotheses for Chi-square Goodness-of-Fit and Homogeneity using data collections: • given counts of 256 randomly selected executives in 12 zodiac sign categories, conduct a Chi-square test for Goodness-of-Fit and draw an appropriate conclusion in context; • given counts for two populations, conduct a Chi-square test of Homogeneity.
3 Complex Proficiency	Is skilled at generating and testing hypotheses for Chi-square Independence using a data collection.	Knowledge Utilization	• given counts of police vehicle searches by race of the driver, conduct a Chi-square test of Independence and draw an appropriate conclusion in context.
2 Foundational Proficiency	Understands how to find and interpret marginal, joint and conditional relative frequencies from two-way frequency tables. Understands how to organizing counts into a two-way frequency table. Understands the differences between t, z and $\chi 2$ sampling distributions. Knows terms: chi-square, expected counts, goodness-of-fit, homogeneity.	Retrieval	• given a table of the above data, find and interpret marginal and joint conditional relative frequencies. • given counts of students graduating with different majors and whether they have obtained employment upon graduation or not, organize counts into a two-way frequency table. • describe the differences between t, z and $\chi 2$ sampling distributions. • define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 14
Learning Target: MA.14.SPPP.14.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why we compute a confidence interval for the slope of a least-squares regression line.
3 Complex Proficiency	Understands the rules of inference for a confidence interval for the slope of a least-squares regression line.	Knowledge Utilization	• given a 95% confidence level, slope = 0.527 and SE b1 = 0.0655 for the linear relationship between the log diameter and log age of terrestrial impact craters, select the appropriate formula, add and subtract the margin of error to and from b1 and interpret the result in context.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Population Parameters
Scope Level: 15
Learning Target: MA.15.SPPP.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain why slope is used to test hypotheses about a least-squares regression line.
3 Complex Proficiency	Is skilled at generating and testing hypotheses for the slope of a least-squares regression line using a data collection.	Knowledge Utilization	• given waist size and percent of body fat for 200 men, develop appropriate hypotheses, conduct a test of inference for regression, and draw an appropriate conclusion in context.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Math: Statistics & Probability: Probability

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 01
Learning Target: MA.01.SPP.01.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• estimate the probability of having an Internet connection by using a calculator or computer software to repeat a simulation many times.
3 Complex Proficiency	Understands the chance of an outcome of a simple event.	Comprehension	• represent the chance of an outcome of a simple event.
2 Foundational Proficiency	Knows the terms: outcomes, chance, probability, simple event. Knows the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.	Retrieval	• define and give an example of the terms: outcomes, chance, probability, simple event. • describe the probability of an event as a number between zero and one.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 02
Learning Target: MA.02.SPP.03.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge & Utilization	• select the appropriate rule. • use the multiplication rule to calculate the probability of two independent events, for example, finding a stop light red on two separate days of the week. • given the probabilities of men preferring three different colors, use the complement rule to calculate the probability that at least one picked purple.
3 Complex Proficiency	Is skilled at finding probabilities of compound events using organized lists, tables, tree diagrams.	Retrieval	• identify the probability of event based on compound events. • create a probability table for choosing political parties using populations proportions.
2 Foundational Proficiency	Knows the terms: compound event, equally likely, subset, sample space.	Retrieval	• Define and give an example of the terms: compound event, equally likely, subset, sample space.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 03
Learning Target: MA.03.SPP.01.04

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• given the percentages of students earning A,B,C,D and F for a college statistics course, calculate the expected value and interpret the result in context.
3 Complex Proficiency	Understands the rules for computing probabilities.	Analysis	• determine when to use the addition rule and interpret the answer in terms of the model. DR
2 Foundational Proficiency	Understands that the long-run relative frequency of repeated independent events gets closer and closer to the true relative frequency as the number of trials increases (The Law of Large Numbers). Knows the term: combinations, permutations. Knows rules of multiplication counting principle.	Retrieval	• define and give an example of the terms: combinations and permutations. • describe the multiplication counting principle. • demonstrate, using a calculator or software program, that the frequency of flipping a coin approaches 50% after numerous trials.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 04
Learning Target: MA.04.SPP.02.03

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• use the formula for conditional probabilities to determine the probability of being a survivor and first-class passenger on the Titanic. • use the formula for independence to determine equality between children with asthma living in a household with smokers and children with asthma living in a household without smokers.
3 Complex Proficiency	Understands when two events A and B are independent.	Comprehension	• identify that two events do not impact one another.
2 Foundational Proficiency	Knows the terms: conditional probability. Knows the conditional probability of A given B is P(A and B)/P(B).	Retrieval	• define and give an example of the terms: conditional probability.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 05
Learning Target: MA.05.SPP.05.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• select and use the appropriate formulas to compute the mean and standard deviation of the difference between the cost of caring for hamsters and rabbits if the average cost for hamsters is $50 per year and for rabbits $75 per year, with a standard deviation of $5 for hamsters and $10 for rabbits.
3 Complex Proficiency	Understands the rules of probability for mean and standard deviation of a random variable.	Analysis	• select the appropriate formula and compute mean and standard deviation of 120 fundraising amounts where the historical pledges average about $32 with a standard deviation of $54.
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 06
Learning Target: MA.06.SPP.06.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• explain the connection between the Normal model and Binomial and Geometric models.
3 Complex Proficiency	Is skilled at using Geometric and Binomial models to estimate probabilities. Understands when to use a geometric or binomial model.	Knowledge Utilization	• select which model to use and use it to estimate probability, for example, for how many people we would have to examine in a blood drive to find someone with type O-negative blood where approximately 6% of the population have such blood; • calculate the probability that there are 2 or 3 donors given the above facts. • describe when to use a geometric or binomial model.
2 Foundational Proficiency	Knows the term: Bernoulli trial.	Retrieval	• define and give an example.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 07
Learning Target: MA.07.SPP.07.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• explain why we use a sampling distribution model.
3 Complex Proficiency	Is skilled at using a sampling distribution model to make statements about the distribution of a proportion or mean under repeated sampling.	Analysis	• given that 22% of 18-year-old females in the U.S. have a body mass index (BMI) of 25 or more, determine whether it is unusual that only 31 of 200 randomly selected females this age reported BMIs greater than 25.
2 Foundational Proficiency	Understands the sampling distribution of a sample proportion. Understands the sampling distribution of a sample mean. Understands the Central Limit Theorem.	Comprehension	• draw the density curve, showing standard deviation, mean and distribution for a Normal Curve given, for example, p = .45 and sample size = 1000. • draw the density curve, showing standard deviation, mean and distribution for a Normal Curve given, for example, $\mu = 25$, s = 5 and sample size = 1000. • explain when a sampling distribution approaches Normality.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 08 (New Level)
Learning Target: MA.08.SPP.08.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency		Comprehension	• describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").
2 Foundational Proficiency		Retrieval	• defines event, sample space, union, intersection, and complement.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 09 (New Level)
Learning Target: MA.09.SPP.09.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Analysis	
2 Foundational Proficiency	Define and identify independent events and calculate probability of a specific event.	Retrieval	• explain and provide an example to illustrate that for two independent events the probability of the events occurring together is the product of the events.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 10 (New Level)
Learning Target: MA.10.SPP.10.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
3 Complex Proficiency	Understand the conditional probability of A given B as P(A and B)/P(B).	Comprehension	
2 Foundational Proficiency		Retrieval	• explains conditional probability is the probability of an event occuring given the occurance of some other event and give examples that illustrate conditional probability.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 11 (New Level)
Learning Target: MA.11.SPP.11.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• write and solve original problems involving compound events, permutations and/or combinations.
3 Complex Proficiency		Analysis	• use permutations and combinations to compute probabilities of compound events and solve problems.
2 Foundational Proficiency		Retrieval	• distinguish between situations of those that require permutations and those that require combinations. • define and can compute factorial, permutation, combination, and compound events.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Probability
Scope Level: 12 (New Level)
Learning Target: MA.12.SPP.12.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency		Analysis	• calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
2 Foundational Proficiency		Retrieval	• calculate and interpret the expected value of a random variable. • define random variable and expected values, and identify situations in which they may be used.
1	With help….. has the 2.0 content.		
Notes:			

Math: Statistics & Probability: Statistical Studies

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 01
Learning Target: MA.01.SPSS.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• describe why biased sampling methods or questions do not allow statements to be drawn about a population.
3 Complex Proficiency	Understands bias due to inferior sampling methods.	Analysis	• describe inferior sampling methods and explain why they are inferior.
2 Foundational Proficiency	Knows the difference between a census, sample survey, observational study and experiment and when to use each. Knows the difference between a population, parameter of interest, sample and statistic. Knows the terms: cluster sampling, convenience sampling, multi-stage, nonresponse, parameter, sample, statistic, undercoverage, voluntary response sample.	Retrieval	• using specific facts, identify a census, sample survey, observational study and experiment; and explain when to use each. identify the population, parameter of interest, sample and statistic given, for example, a Gallup Poll of a random sample of 1633 adults, asking “In general, are you satisfied with the way things are going in the U.S. at this time?”, where 1127 said they were. define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 02
Learning Target: MA.02.SPSS.02.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Comprehension	• correctly state an introductory paragraph of required ethics in context on a survey.
3 Complex Proficiency	Knows the key concepts of data ethics.	Retrieval	• describe the key concepts of data ethics.
2 Foundational Proficiency	Knows the terms: confidential, informed consent.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 03
Learning Target: MA.03.SPSS.03.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Comprehension	• describe the purpose of an SRS.
3 Complex Proficiency	Is skilled at using a table of random digits, calculator and computer to select an SRS from a population.	Retrieval	• assign appropriate digits to individuals and randomly select a sample of a set size, using a table of random digits, calculator and computer to select a SRS from a population.
2 Foundational Proficiency	Knows the terms: sampling frame, simple random sample (SRS), table of random digits.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 04
Learning Target: MA.04.SPSS.04.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• design a stratified survey by class level, utilize the homeroom list to randomly select a sample and administer the survey to that sample.
3 Complex Proficiency	Understands how to use random digits to select a stratified random sample from a population.	Retrieval	• describe a stratified sample as slicing the population into groups based on a common characteristic and then randomly select a sample from each stratum.
2 Foundational Proficiency	Knows the term: stratified sample.	Retrieval	• define and give an example.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 05
Learning Target: MA.05.SPSS.05.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• after designing a completely randomized experiment testing brand name candy against generic candy, conduct that experiment in class.
3 Complex Proficiency	Understands how to outline the design of a completely randomized experiment, using a diagram showing sizes of groups, specific treatments and response variable.	Analysis	• outline the design of a completely randomized experiment, using a diagram showing random assignment to specific treatments, sizes of groups and comparison of results.
2 Foundational Proficiency	Understands how to use a random digit table, calculator, computer and other appropriate method to carry out random assignment of subjects to treatment groups in a completely randomized experiment. Knows the characteristics of a well-designed and well-conducted experiment. Knows the terms: experimental units, explanatory variable, factor, level, response variable, subjects, control group, placebo, randomization, replication.	Retrieval	• use a random digit table, calculator, computer and other appropriate method to carry out random assignment of subjects to treatment groups in a completely randomized experiment. • identify the characteristics of a well-conducted experiment. • define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 06
Learning Target: MA.06.SPSS.06.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Knowledge Utilization	• after blocking the class on the basis of gender, conduct an experiment to determine how many free throws girls make versus boys
3 Complex Proficiency	Understands when the use of matched pairs or other block designs is appropriate and can outline the design of such a randomized experiment.	Analysis	• explain when the use of matched pairs or other block designs is appropriate and outline the design of such a randomized experiment.
2 Foundational Proficiency	Knows the terms: blocking, matched pairs.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Statistics/Probability: Statistical Studies
Scope Level: 07
Learning Target: MA.07.SPSS.07.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.	Analysis	• distinguish between lurking and confounding variables and give an appropriate example of each: • given a fact that families in a third-world country live longer if they have a television, explain that high income is a lurking variable that improves health care; and • given a fact that online students do better than classroom students for the same course, explain that course setting is confounded with student preparation, making it impossible to distinguish how much each have influenced their grades.
3 Complex Proficiency	Understands generalizability of results and types of conclusions that can be drawn from observational studies, surveys and experiments. Understands bias due to confounding or lurking variables and how to control such bias.	Analysis	• identify generalizability of results and types of conclusions that can be drawn from observational studies, surveys and experiments. • explain bias due to confounding or lurking variables and how to control such bias.
2 Foundational Proficiency	Knows the terms: confounding, lurking variables, treatment, variability, double-blind, placebo effect, statistical significance.	Retrieval	• define and give an example of each term.
1	With help….. has the 2.0 content.		
Notes:			

Math: Tools of Measurement: Measurement

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 01
Learning Target: MA.01.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands "more", "less" when comparing objects Is skilled at sorting, classifying, and categorizing objects using length and width. Understands objects can be categorized by comparing their lengths and widths.	Analysis	• compare the heights of two children and identify which is taller. • classify objects into given measurement categories. • order objects in terms of length. • order objects in terms of width. CR, CLR
2 Foundational Proficiency	Knows the term: unit. Understands what "more" and "less" mean.	Retrieval	• define the term: unit. • describe how to distinguish what lengths and widths are more or less than the other.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 02
Learning Target: MA.02.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that length and distance can be measured using an appropriate measurement tool.	Analysis	• measure the length of an object or the distance between objects using the appropriate tool. • selects the appropriate measurement tool to use when measuring classroom objects and explain why the tool was chosen.
2 Foundational Proficiency	Knows the terms: millimeter, centimeter, meter, inch, foot, yard Knows the measurement tools: yardstick, meter stick, ruler, tape measure	Retrieval	• describe and label the terms: millimeter, centimeter, meter, inch, foot, yard. • define and identify these tools of measure: ruler, yardstick, meter stick, measuring tape,
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 03
Learning Target: MA.03.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the rules for estimating, measuring and expressing the length of an object to the nearest inch and centimeter.	Analysis	• estimate the length of an object to the nearest inch and centimeter. • measure the object and express the length correctly in terms of inches and centimeters. DR
2 Foundational Proficiency	Knows the terms and abbreviations for inches and centimeters. Knows the term: ruler Knows how to measure with a ruler.	Retrieval	• recall the abbreviations for inches and centimeters. • explain what a ruler is and how to use this tool to measure objects.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 04
Learning Target: MA.04.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at measuring to the half-inch and quarter-inch.	Retrieval	• use a ruler to correctly measure objects to the nearest half inch and quarter inch.
2 Foundational Proficiency	Understands that a ruler can be broken down into a number line with fractional parts.	Retrieval	• describe the scale represented on a ruler.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 05
Learning Target: MA.05.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at measuring liquid volume and weight. Understands when to use the appropriate measurement tool for liquid volume or weight.	Retrieval	• estimate and measure liquid volume using a variety of volume containers. • estimate and measure weight of objects.
2 Foundational Proficiency	Knows: oz < lb; g < kg; ml < l; tbsp < cups < pt < qt. Understands which measurement tool is used for liquid volume and weight.	Retrieval	• show the relationship between ounces and pounds, grams and kilograms, milliliters and liters, cups, pints and quarts. • explain why tools to measure liquid volume and weight are chosen as the tool of measurement.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 06
Learning Target: MA.06.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the rules for converting measurement units within the same system.	Retrieval	• convert measurement units within one system.
2 Foundational Proficiency	Understands the relationship among linear units of measure. Know the term: conversion.	Retrieval	• complete a chart showing the relationship among units of measure: mm < cm < m; in < ft < yd.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Measurement
Scope Level: 07
Learning Target: MA.07.MME.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving multi-step word problems requiring conversions of measurement.	Retrieval	• describe how to convert units of measurement in a real-world problem. For example: You need 38" of ribbon for a bow. How many yards do you need to buy?
2 Foundational Proficiency	Knows how to read a unit conversion chart.	Retrieval	• identify conversions between units using a unit conversion chart.
1	With help….. has the 2.0 content.		
Notes:			

Math: Tools of Measurement: Money

Content Area: Math
Measurement Topic: Tools of Measurement: Money
Scope Level: 01
Learning Target: MA.01.MMO.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the value of a collection of like coins.	Comprehension	• find the value of a group of like coins.
2 Foundational Proficiency	Knows the terms (and values) of penny, nickel, dime, quarter, and dollar bill.	Retrieval	• identify coins and name their values from a group of coins.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Money
Scope Level: 02
Learning Target: MA.02.MMO.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the value of a collection of coins.	Comprehension	• find the value of a group of coins and represent the value in a variety of ways.
2 Foundational Proficiency	Knows the symbol (cents) and $. Knows how to order coins for counting.	Retrieval	• show the symbols for dollars and cents. • count a collection of coins.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Money
Scope Level: 03
Learning Target: MA.03.MMO.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the rules for exchanging coins and bills.	Analysis	• make exchanges between a variety of coins and bills. DR
2 Foundational Proficiency	Knows coin equivalents.	Retrieval	• show that 5 pennies = 1 nickel; 2 nickels = 1 dime; etc, and other equivalents up to a dollar.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Money
Scope Level: 04
Learning Target: MA.04.MMO.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at converting coins and bills.	Retrieval	• describe or illustrate the solution to real world problems involving dollar bills, quarters, dimes, nickels, and pennies.
2 Foundational Proficiency	Is skilled at making change.	Retrieval	• use coins and dollar bills to make change.
1	With help….. has the 2.0 content.		
Notes:			

Math: Tools of Measurement: Time

Content Area: Math
Measurement Topic: Tools of Measurement: Time
Scope Level: 01
Learning Target: MA.01.MTI.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concept of time and sequence.	Comprehension	• recognizes basic concepts of time and sequence. (e.g. morning, afternoon, yesterday, today & tomorrow)
2 Foundational Proficiency	Knows the terms: time.	Retrieval	• describe the term: time.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Time
Scope Level: 02
Learning Target: MA.02.MTI.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that time is measured in hour and half-hour intervals using an analog clock.	Retrieval	• tell time to the nearest half-hour using an analog clock.
2 Foundational Proficiency	Know the terms: analog, digital, clock, hour, half hour.	Retrieval	• identify given times with pictures of analog ad digital clocks to the hour and half-hour.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Time
Scope Level: 03
Learning Target: MA.03.MTI.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands time can be measured to the nearest quarter hour on an analog and digital clock.	Comprehension	• tell time to the nearest quarter hour labeling the time with a.m. or p.m. using an analog clock. • tell time to the nearest 5 minutes labeling the time with a.m. or p.m. using an digital clock.
2 Foundational Proficiency	Knows the terms: a.m., p.m. quarter hour Knows there are 60 minutes in an hour; 24 hours in a day .	Retrieval	• explain what a.m and p.m. mean. • recall the number of minutes in an hour and hours in a day.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Time
Scope Level: 04
Learning Target: MA.04.MTI.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that time can be measured to the nearest 5 minutes using a.m. and p.m. on an analog and digital clock.	Comprehension	• tell time to the nearest 5 minutes labeling the time with a.m. or p.m. using an analog clock. • tell time to the nearest 5 minutes labeling the time with a.m. or p.m. using an digital clock.
2 Foundational Proficiency	Knows the terms: minute Knows how to skip count by 5's.	Retrieval	• skip count by fives using the numbers on a clock.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Time
Scope Level: 05
Learning Target: MA.05.MTI.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands that time can be measured to the nearest minute using a.m. and p.m. on an analog and digital clock.	Comprehension	• tells and write time to the nearest minute using an analog and digital clock.
2 Foundational Proficiency	Knows that there are 60 seconds in a minute.	Retrieval	• recall the number of seconds in a minute.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Tools of Measurement: Time
Scope Level: 06
Learning Target: MA.06.MTI.01.02

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at calculating elapsed time.	Retrieval	• solves word problems involving adding and subtracting time intervals in minutes. • solve word problems involving adding and subtracting time intervals in days, weeks and months.
2 Foundational Proficiency	Knows the term: interval, elapsed time. Knows there are 7 days in a week; 12 months in a year, 365 days in a year.	Retrieval	• define and give an example of an interval of time. • recall the number of days in a week, months in a year, and days in a year
1	With help….. has the 2.0 content.		
Notes:			

Math: Trigonometry: Unit Circle

Content Area: Math
Measurement Topic: Trigonometry: Unit Circle
Scope Level: 01
Learning Target: MA.01.TUC.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	Comprehension	• explain how to use the unit circle to evaluate each: sin ($\pi/2$), cos (0), tan (π), sec($3\pi/2$).
2 Foundational Proficiency	Understands the terms unit circle, angle, degrees, minutes, seconds, initial side, terminal side, arc, radian measure, standard position, supplementary, complementary, arc length. Understands the ratios: sine, cosine, tangent, secant, cosecant, cotangent.	Retrieval	• convert between degree and radian angle measures. • Sketch a given angle in standard position. • Calculate the supplement to an angle given in radians. • Determine the cosecant of an angle in a given triangle. • Convert 32.8 degrees into degrees, minutes and seconds. • Determine the quadrant at the terminal side of an angle of measure $-2\pi/3$ falls in.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Unit Circle
Scope Level: 02
Learning Target: MA.02.TUC.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	Comprehension	• describe the relationship between the sine of all angles with reference angle $\pi/6$. Use the unit circle in your explanation. • describe the relationship between the cos (x) and cos (-x)
2 Foundational Proficiency	Understands the terms: reference angle, periodic, even & odd symmetry.	Retrieval	• identify the reference angle for the angle $4\pi/7$. • list the trigonometric functions with even symmetry.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Unit Circle
Scope Level: 03
Learning Target: MA.03.TUC.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		Given an exact value of a trig function, use geometric methods to find all angles in the unit circle that have such a value. (Analysis)
3 Complex Proficiency	Understands how to use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/6, \pi/4$ and $\pi/3$ and use the unit circle to express the values of sine, cosine and tangent for x, $\pi \mp x$, $2\pi \mp x$	Comprehension	• evaluate, give the exact values for each: $\sin(-\pi/4)$ $\cos(11\pi/6)$ $\csc(-5\pi/3)$ • if $\cos x = 3/7$, determine the value of each: $\cos(2\pi - x)$, $\cos(\pi + x)$, $\cos(-x)$.
2 Foundational Proficiency	Understands the values of the ratios in special right triangles. Understands the symmetry in the 4 quadrants of the coordinate plane when the unit circle is used.	Comprehension	• sketch a coordinate plane and list the trigonometric functions which are positive in each quadrant.
1	With help….. has the 2.0 content.		
Notes:			

Math: Trigonometry: Trigonometric Functions

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Functions
Scope Level: 01
Learning Target: MA.01.TTF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		Given a trigonometric model, describe a situation for which this would apply incorporating the key features in that model.
3 Complex Proficiency	Is skilled at using trigonometric functions to model periodic phenomena with specified amplitude, frequency and midline.	Retrieval	• write an equation for the function with parent: y = sin x amplitude: 2, period: π/3,and phase shift right π/4
2 Foundational Proficiency	Understands the terms: amplitude, midline (equilibrium), period. Know the periods of the 6 parent trigonometric functions.	Retrieval	• identify the period of each of the 6 parent trigonometric functions. • describe the terms amplitude and midline (equilibrium) and how to find them on a graph of a trigonometric function.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Functions
Scope Level: 02
Learning Target: MA.02.TTF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		Create the model of a periodic function to represent a real life phenomenon. Create an equivalent trigonometric function model using a co-function.
3 Complex Proficiency	Understands the key features of the graphs of periodic functions.	Comprehension	• graph the function below. • show 2 full periods and give the period. $f(x) = -3\cos\frac{1}{2}(x-\pi)-2$
2 Foundational Proficiency	Understands the terms: phase shift, vertical shift, scale	Retrieval	• identify the phase shift and vertical shift of f(x)=1/2sec(2x-π/2)+1
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Functions
Scope Level: 03
Learning Target: MA.03.TTF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	Comprehension	• identify the graphs of 〖sin〗 ^(-1) x, 〖cos〗 ^(-1) x, 〖tan〗 ^(-1) x
2 Foundational Proficiency	Understands the domain and range of Arcsin(x), Arccos (x), Arctan (x). Is skilled at evaluating expressions involving inverse trigonometric functions.	Retrieval	• identify the domain and range of Arccos (x). Evaluate Arcsin (√3/2).
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Functions
Scope Level: 04
Learning Target: MA.04.TTF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	I		
3 Complex Proficiency	Is skilled at solving trigonometric equations with argument x (x-coefficient = 1) . Is skilled at using algebraic techniques and inverse functions to solve trigonometric equations.	Retrieval	• solve the equation over all reals: sec x csc x = 2 csc x • solve the equation over (0,2π): 4cos^2 x-1=0
2 Foundational Proficiency	Understand how to use a graphing utility to solve trigonometric equations and to check solutions to trigonometric equation.	Retrieval	• use a graphing calculator to solve the equation 4sin^2(x)-3sinx=0 over (0,4π)
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Functions
Scope Level: 05
Learning Target: MA.05.TTF.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving multi-angle trigonometric equations (coefficient of x not equal to 1)	Retrieval	• Solve the equation over all reals: sec 3x csc2 x = 2 csc 2x • Solve the equation: 4cos^2 (x/2)-1=0
2 Foundational Proficiency	Understand how changing the period of a trigonometric function impacts the number of solutions on an interval.	Retrieval	• sin x =1/2 has 2 solutions on the interval $0 \le x < 2\pi$ • identify how many solutions sin (3x)=1/2 has in the same interval.
1	With help….. has the 2.0 content.		
Notes:			

Math: Trigonometry: Trigonometric Identities

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Identities
Scope Level: 01
Learning Target: MA.01.TTI.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		Given a set of criteria, solve for the identified trig function. Given sec x=7/5 and sin x<0, find tan x.
3 Complex Proficiency	Is skilled at rewriting trigonometric expressions and solving trigonometric equations using the quotient identity, reciprocal identity, Pythagorean identity, co-functions, even/odd identities, and sum and difference formulas.	Retrieval	• solve the equation on the interval (0,2π): sin x = cos (2x+10). • rewrite an expression in terms of an equivalent reciprocal function or cofunction. • rewrite sin x using its reciprocal function. • rewrite sec 2x in terms of its cofunction
2 Foundational Proficiency	Is skilled at identifying reciprocal functions and co-functions. Understands Pythagorean identities and quotient identities.	Retrieval	• complete the statement: The cofunction of tangent is_____.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Identities
Scope Level: 02
Learning Target: MA.02.TTI.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using the Pythagorean Identity in problem solving situations F-TF #8.	Retrieval	• prove/verify that sec^4 x - tan ^ 4 x = 1 + 2 tan ^2 x
2 Foundational Proficiency	Is skilled at identifying different variations of the Pythagorean Identity.	Retrieval	• write 6 different forms of sin^2x + cos^2x=1.
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Identities
Scope Level: 03
Learning Target: MA.03.TTI.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at rewriting trigonometric expressions and solving trigonometric equations using the even/odd identities, and sum and difference formulas F-TF#9	Retrieval	• Prove/verify: $\sin(x+y)+\sin(x-y)=2\sin x\cos y$ • solve the equation on the interval $(0,2\pi)$: $\tan(x+\pi)+2\sin(x+\pi)=0$
2 Foundational Proficiency	Is skilled at evaluating trigonometric expressions using even/odd identities, and sum and difference formulas	Retrieval	• evaluate $\sin(7\pi/6-\pi/3)$ in exact form
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Trigonometry: Trigonometric Identities
Scope Level: 04
Learning Target: MA.04.TTI.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at rewriting trigonometric expressions and solving trigonometric equations using multiple-angle formulas, power-reducing formulas, half-angle formulas, and product-to-sum formulas.	Retrieval	• Prove/verify: csc2x=(cscx)/(2cosx) • solve the equation and give the general solution: sin(6x) +sin(2x)=0
2 Foundational Proficiency	Is skilled at evaluating trigonometric expressions using multiple-angle formulas, power-reducing formulas, half-angle formulas, and product-to-sum formulas.	Retrieval	• use the half-angle formulas to evaluate: sin (π/12) in exact form.
1	With help….. has the 2.0 content.		
Notes:			

Math: Calculus: Limits

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 01
Learning Target: MA.01.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand function behavior and the limiting process. Understand and apply the rules of derivatives in algebraic, graphical and numerical situations.		
2 Foundational Proficiency	Understand the notation of one and two-sided limits. Understand one-sided limits at an endpoint. Understand limits of a constant, sum, product and quotient.		
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 02
Learning Target: MA.02.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand asymptotic and unbounded behavior in functions and how limits are used to describe the behavior of functions.		
2 Foundational Proficiency	Understand limits at negative and positive infinity refer to the end behavior of a function. Understand that limits involving infinity at interior points refer to vertical asymptotes. Understand non-existent limits.		
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 03
Learning Target: MA.03.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at applying the Sandwich Theorem to evaluate the limit of special functions		
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 04
Learning Target: MA.04.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand continuity of a function in terms of limits. Understand the Intermediate Value Theorem and Extreme Value Theorem and the importance of continuity.		
2 Foundational Proficiency	Understand the types of discontinuities: essential, removable, jump, oscillating. Understands continuity at a point, continuity over a closed interval, continuity of a function. Knows how to apply the rules of continuity		
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 05
Learning Target: MA.05.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand the relationship between differentiability and continuity		
2 Foundational Proficiency	Understand the terms local linearity and local linear approximation. Know how to determine if a function is differentiable at a point. Know where f'(a) will fail to exist. Knows the terms cusp, corner, vertical tangent and oscillating behavior		
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 06
Learning Target: MA.06.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the definition of the derivative as the limit of the difference quotient.		
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Limits
Scope Level: 07
Learning Target: MA.07.CL.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at setting up an approximating Riemann sum and representing its limit as a definite integral.		
2 Foundational Proficiency			
1	With help….. has the 2.0 content.		
Notes:			

Math: Calculus: Integration

Content Area: Math
Measurement Topic: Calculus: Integration
Scope Level: 01
Learning Target: MA.01.CIN.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand a definite integral and its relationship to area. Is skilled at using rectangles and trapezoids to approximate the area under curves represented algebraically, geometrically or by a table of values. Understands the use of Reimann sums to approximate definite integrals.	Retrieval	
2 Foundational Proficiency	Understands the integral symbol and the parts of an integral including the limits of integration and the integrand. Knows the terms: Reimann sums, LRAM, RRAM, MRAM, and subintervals.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Integration
Scope Level: 02
Learning Target: MA.02.CIN.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the use of known area formulas to solve integrals. Is skilled at using the basic properties of integrals	Retrieval	
2 Foundational Proficiency	Understands the basic properties of integrals: sum and difference, constant multiple, integral of a constant, linearity	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Integration
Scope Level: 03
Learning Target: MA.03.CIN.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding antiderivatives directly from derivatives of basic functions. Is skilled at using Part 2 of the Fundamental Theorem of Calculus to evaluate definite integrals. Understands a definite integral as a limit of a sum.	Retrieval	
2 Foundational Proficiency	Understands FTC part 2 and how to apply it. Knows the terms: definite integral, indefinite integral	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Integration
Scope Level: 04
Learning Target: MA.04.CIN.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding antiderivatives by substitution of variables including change of limits.	Retrieval	
2 Foundational Proficiency	Is skilled at choosing which problems will need u-substitution. Is skilled at choosing u when needing to use u-substitution. Understands the steps to solve an integral involving u-substitution.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Integration
Scope Level: 05
Learning Target: MA.05.CIN.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands part 1 of the Fundamental Theorem of Calculus. Is skilled at writing equations for functions defined by an integral.	Retrieval	
2 Foundational Proficiency	Understands the processes of differentiation and integration are inverse operations. Understands when to use the chain rule when applying the FTC part 1.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Integration
Scope Level: 06
Learning Target: MA.06.CIN.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at solving separable differential equations.	Retrieval	
2 Foundational Proficiency	Is skilled at identifying differential equations where you must separate variables to solve.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Math: Calculus: Derivatives

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 01
Learning Target: MA.01.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding derivatives of functions using the power rule, product rule and quotient rule.	Retrieval	• find derivatives of functions using the power rule, product rule and quotient rule.
2 Foundational Proficiency	Understands the power rule, product rule and quotient rule.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 02
Learning Target: MA.02.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding derivatives using the chain rule.	Retrieval	• find derivatives using the chain rule.
2 Foundational Proficiency	Understands the chain rule and how it is used to find a derivative.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 03
Learning Target: MA.03.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at finding derivatives using implicit differentiation.	Retrieval	• is able to find derivatives using implicit differentiation. Examples might include the derivative of the unit circle with respect to a parametric variable "t" in preparation for related rates problems.
2 Foundational Proficiency	Understands implicit differentiation.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 04
Learning Target: MA.04.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	is skilled at finding derivatives of exponential, logarithmic, trigonometric and inverse trigonometric functions.	Retrieval	• find derivatives of exponential, logarithmic, trigonometric and inverse trigonometric functions.
2 Foundational Proficiency	Understands the process of finding derivatives of exponential, logarithmic, trigonometric and inverse trigonometric functions.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 05
Learning Target: MA.05.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the interpretation of the derivative in the context of position, velocity and acceleration.	Retrieval	• interpret the derivative in the context of position, velocity and acceleration.
2 Foundational Proficiency	Understands position, velocity and acceleration as they relate to derivatives.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 06
Learning Target: MA.06.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understand where derivatives do not exist.	Comprehension	• explain where derivatives do not exist, such as vertical asymptotes, breaks and cusps.
2 Foundational Proficiency	Understands that derivatives may not exist.	Comprehension	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 07
Learning Target: MA.07.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concept of related rates in situational problem solving.	Comprehension	• model rates of change using the concept of related rates in situational problem solving.
2 Foundational Proficiency	Understands related rates.	Retrieval	
1	With help..... has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 08
Learning Target: MA.08.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the concept of optimization in situational problem solving.	Comprehension	• model rates of change using the concept of optimization in situational problem solving.
2 Foundational Proficiency	Understands what optimization is.	Comprehension	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 09
Learning Target: MA.09.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the meaning of the derivative in terms of instantaneous rate of change and local linear approximation.	Comprehension	• interpret the derivative in terms of instantaneous rate of change and local linear approximation. • Find equations of tangent lines.
2 Foundational Proficiency	Understands tangent lines.	Comprehension	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 10
Learning Target: MA.10.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at analyzing the first and second derivatives to create a graph.	Retrieval	• use derivatives to create graphs including the concepts of increasing and decreasing, maximum and minimum, points of inflection, concavity…
2 Foundational Proficiency	Is skilled at creating a graph using derivatives.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 11
Learning Target: MA.11.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the relationships between f, f' and f''.	Comprehension	• interpret the characteristics and relationships between f, f' and f''
2 Foundational Proficiency	Understands what f, f' and f'' represent.	Comprehension	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 12
Learning Target: MA.12..CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at using The Mean Value Theorem, The Intermediate Value Theorem and Extreme Value Theorem	Retrieval	• Use and apply the three existence theorems and their geometric interpretations.
2 Foundational Proficiency	Understands The Mean Value Theorem, The Intermediate Value Theorem and Extreme Value Theorem.	Retrieval	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 13
Learning Target: MA.13.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Understands the geometric interpretation of differential equations using slope fields. Understands that solutions to differential equations are families of solution curves based on initial conditions.	Comprehension	• create slope fields from differentials equations both by hand and/or using technology. • describe the relationship between slope fields and solution curves.
2 Foundational Proficiency	Understands the concepts of slope fields and solution curves.	Comprehension	
1	With help….. has the 2.0 content.		
Notes:			

Content Area: Math
Measurement Topic: Calculus: Derivatives
Scope Level: 14
Learning Target: MA.14.CD.01.01

Proficiency Level	Proficiency Level Description	Taxonomy Level	Evidence: The learner is able to:
4 Going Beyond	In addition to the 3.0 knowledge, infers or applies beyond what was taught.		
3 Complex Proficiency	Is skilled at identifying indeterminant forms and using L'Hospital's Rule to find limits.	Retrieval	• identify indeterminant forms and use L'Hospital's Rule to find limits.
2 Foundational Proficiency	Understands the concepts of indeterminant forms and the L'Hospital's Rule.	Retrieval	
1	With help..... has the 2.0 content.		
Notes:			