Rhode Island Alternate Assessment
Grade Span Expectations

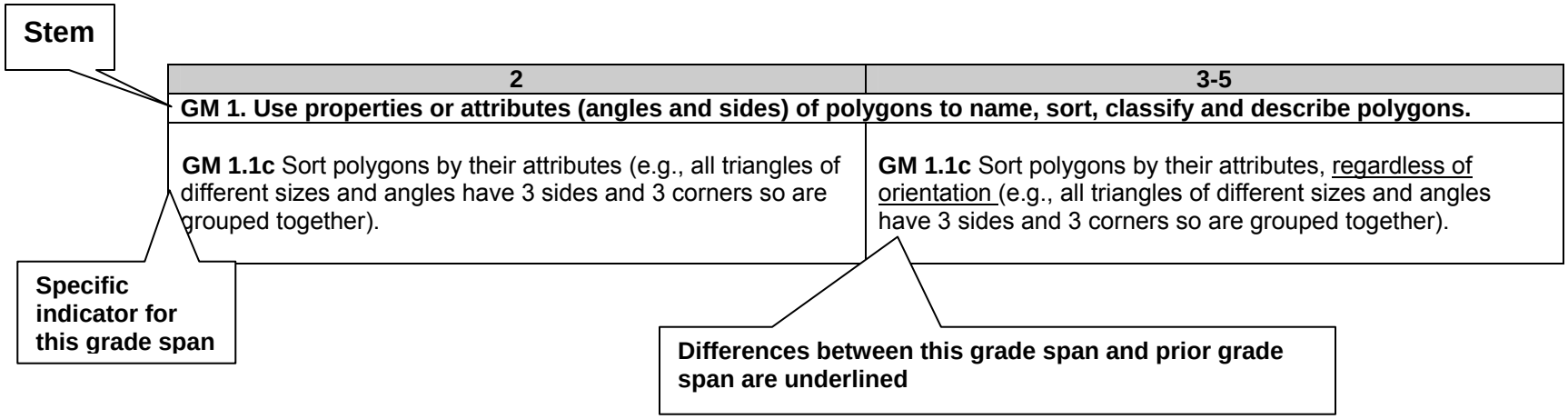
Mathematics

The Rhode Island **Alternate Assessment Grade Span Expectations** (AAGSEs) are derived and expanded from the New England Common Assessment Program (NECAP) Grade Level Expectations in mathematics, reading and writing and the NECAP Grade Span Expectations in science.

A statement in bold, called the "stem," is at the beginning of each AAGSE. Each stem is the same across the grade span for a given AAGSE, and is meant to communicate the main curriculum and instructional focus of the AAGSE across the grade spans. The language and order of the stems is identical to the language and order of the stems in the NECAP GLEs.

The unbolded text within an AAGSE indicates how the AAGSE is specified at a given grade span. There are often several indicators for each AAGSE stem. Each indicator is coded. The language and order of the AAGSE indicators do not necessarily correspond to the language and order of the indicators within a corresponding GLE stem. Some are identical; some have been modified and adapted to make the AAGSE accessible; some have been added to describe concepts and skills already assumed by the GLEs; and some have been eliminated as inappropriate for students with significant cognitive disabilities.

Differences between adjacent grade spans and added concepts and skills are underlined.



Content Area*	Title of Strand	Code	Grade Level Focus
Mathematics	Numbers and Operations	NO	All Grades
	Geometry and Measurement	GM	Elementary School
	Data, Statistics and Probability	DSP	Middle School
	Functions and Algebra	FA	High School

*each content area has four grade span assessments: K-2, 3-5, 6-8, and High School.

Alternate Assessment Instructional Terms

Communication: eye gaze, pointing, touching, gesturing, voice response, augmentative communication devices, topic board, pictures, Braille, printed text (written word), head nod, signs/symbols (pic/tactile), objects, stamping.	**Participation:** to take an active role (physically or socially) in content related activities, routines, and with materials by exhibiting behaviors that are observable and measurable, such as: touch, see (visually engage), hear, taste, smell, reach, point, gesture, eye gaze.	**Application:** transferring knowledge from content concepts to practical/concrete situations/activities/routines through the child's mode of participation.
Associate: connect ideas using child's mode of communication.	**Create:** develop an original representation of a math concept through the child's mode of participation. Develop an idea or representation of a concept through the child's mode of participation.	**Awareness:** emergent knowledge.
Describe: give characteristics, examples, and/or attributes through the child's mode of communication.	**Engage:** student actively participates.	**Compare:** identifying similarities and differences between two or more items.
Determine: see Identify/Indicate	**Explore:** student participates through manipulating/attending to content related materials.	**Demonstrate:** apply knowledge to show (understand) comprehension of content concepts through the child's mode of communication and/or participation.
Discriminate: using known information, the student makes appropriate responses within a group of two or more choices.	**Locating:** using known information, the student makes an appropriate response.	**Distinguish:** using known information, the student makes appropriate responses within a group of two or more choices.
Discuss: a social exchange of content related information through the student's mode of communication.	**Make decision:** based on given content information, make an appropriate choice related to the task.	**Employ:** apply knowledge to demonstrate comprehension (understand) of math concepts through the child's mode of communication and/or participation.
Identify/Indicate: give an appropriate response by showing, naming, giving or selecting through the child's mode of communication.	**Observation:** information gained via senses.	**Obtain:** using known information, the student makes an appropriate response.
Justify: based on information/data, support a content concept using the student's mode of communication.	**Reproduce:** recreate a representation of a math concept through the child's mode of participation.	**Reacting:** physical response to stimuli.
Pose: a communicative act to request information through the child's mode of communication.		**Show:** apply knowledge to demonstrate comprehension (understand) of math concepts through the child's mode of communication and/or participation.
Predict: based on given information, student will identify what comes next or what outcome is possible through their mode of communication.		**Use:** apply knowledge to demonstrate comprehension (understand) of math concepts through the child's mode of communication and/or participation.
Reading: using the child's mode of receptive communication to derive meaning from text, symbols and numbers.		

Recognize: see Identify/Indicate		
Represent: show an understanding of a concept through the child's mode of communication.		
Say: a communication act to give information through the student's mode of communication.		
Select: see Identify.		
Text: pictures/symbols/objects/actions/words		
Writing: using the child's mode of expressive communication to create or construct a tangible product that conveys meaning.		

Standard: Number and Operation (NO)

Number and Operation: Demonstrate conceptual understanding of rational numbers with respect to:
1. Whole numbers: **Develop an understanding of cardinal numbers.**

K-2	3-5	6-8	High School
NO 1.1 Represent and number small collections (1-4 items). **NO1.1a** Identify or label a small collection of up to "four" items with a number symbol/word (e.g., point to a collection of up to 4 items).	**NO 1.1** Represent and number small collections (1-4 items). **NO1.1a** Identify or label a small collection of up to "four" items with a number symbol/word (e.g., point to a collection of up to 4 items).	**NO 1.1** No AAGSE at this grade span.	**NO 1.1** No AAGSE at this grade span.
NO 1.2 Use numbers/words/ symbols together to create the counting sequence by one forward and backwards to 20.	**NO 1.2** Use numbers/words/ symbols together to create the counting sequence by one forward and backwards to 100. **NO 1.2a** Count by ones forward to 100.	**NO 1.2** Use numbers/words/ symbols together to create the counting sequence by one forward and backwards to 199. **NO 1.2a** Count by ones forward to 199.	**NO 1.2** No AAGSE at this grade span.
NO 1.3 Use the counting sequence to demonstrate one-to-one correspondence between objects and counting words/symbols (e.g., one/1).	**NO 1.3** Use the counting sequence to demonstrate one-to-one correspondence between objects and counting words/symbols (e.g., one/1). **NO 1.3a.** Count by ones forward from a number other than one (e.g., 7, 8).	**NO 1.3** Use the counting sequence to demonstrate one-to-one correspondence between objects and counting words/symbols (e.g., one/1). **NO 1.3a** Count by ones forward from a number other than one (e.g., 7, 8).	**NO 1.3** No AAGSE at this grade span.
	NO 1.4 Indicate the number before and/or after a specified count term (e.g., "What comes after 1, 2, 3, 4, and 5?"; "Say the number after 10").	**NO 1.4** Indicate the number before and/or after a specified count term (e.g., "What comes after 1, 2, 3, 4, and 5?"; "Say the number after 10").	**NO 1.4** No AAGSE at this grade span.
	NO 1.5 Skip count by 2s, 5s and 10s (may use a hundreds' chart).	**NO 1.5** Skip count by 2s, 5s and 10s (may use a hundreds' chart).	**NO 1.5** Skip-count by 10s starting with a number other than a multiple of 10 (e.g., starting at 12, use a hundreds' chart to count by 10s).
	NO 1.6 Use the counting sequence to demonstrate one-to-one correspondence between objects and counting words/symbols and to demonstrate that the final number is the quantity of the set.	**NO 1.6** Use the counting sequence to demonstrate one-to-one correspondence between objects and counting words/symbols and to demonstrate that the final number is the quantity of the set.	**NO 1.6** Use the counting sequence to demonstrate one-to-one correspondence between objects and counting words/symbols and to demonstrate that the final number is the quantity of the set.

Number and Operation: Demonstrate conceptual understanding of rational numbers with respect to:
2. Whole numbers: **Use place value by applying the concepts of equivalency in composing and decomposing numbers or in expanded notation.**

K-2	3-5	6-8	High School
NO 2.1 Demonstrate that "10" is the base unit in the base- ten system by unitizing numbers up to 99 (e.g.,19 bundles of 10 and 9 singles is the same as 190 + 9 or 199).	**NO 2.1** Demonstrate that "10" is the base unit in the base- ten system by unitizing numbers up to 199 (e.g.,19 bundles of 10 and 9 singles is the same as 190 + 9 or 199). **NO 2.2** Demonstrate that digits have different values depending on their place (ones, tens, hundreds) (e.g., arrange 2 digits to make the largest number). **NO 2.3** Represent numbers in an expanded form (e.g., 10+7=17; or 143=100+40+3). **NO 2.4** Represent quantities in different ways by composing/decomposing numbers to show part-whole relations (e.g., 14=7+7 and 14=9+5).	**NO 2.1** Demonstrate that "10" is the base unit in the base- ten system by unitizing numbers up to 199 (e.g., 19 bundles of 10 and 9 singles is the same as 190 + 9 or 199). **NO 2.2** Demonstrate that digits have different values depending on their place (ones, tens, hundreds) (e.g., arrange 2 digits to make the largest number). **NO 2.3** Represent numbers in an expanded form (e.g., 10+7=17; or 143=100+40+3). **NO 2.4** Represent quantities in different ways by composing/decomposing numbers to show part-whole relations (e.g., 14=7+7 and 14=9+5; 143 = 142+1 and 143=100+43).	**NO 2.1** Demonstrate that "10" is the base unit in the base- ten system by unitizing numbers up to 199 (e.g., 19 bundles of 10 and 9 singles is the same as 190 + 9 or 199). **NO 2.2** Demonstrate that digits have different values depending on their place (ones, tens, hundreds) (e.g., arrange 2 digits to make the largest number). **NO 2.3** Represent numbers in an expanded form (e.g., 10+7=17; or 143=100+40+3). **NO 2.4** Represent quantities in different ways by composing/decomposing numbers to show part-whole relations (e.g., 14=7+7 and 14=9+5; 143=142+1 and 143=100+43).

Number and Operation: Demonstrate conceptual understanding of rational numbers with respect to:
3. Positive Fractional Numbers: **Use fractional numbers to represent a part to whole relationship with area & discrete (set) models.**

K-2	3-5	6-8	High School
NO 3.1 Using concepts of whole units and parts, show how parts make a whole (e.g., show how parts of a brownie can make one whole brownie (area model). **NO 3.2** Show that fractional parts are equal shares or equal-sized portions of a whole unit using area models (e.g., shows a fair share of a cookie; folds a piece of paper into two halves).	**NO 3.1** Using concepts of whole units and parts show how parts make a whole (e.g., show how parts of a brownie can make one whole brownie (area model). **NO 3.2** Show that fractional parts are equal shares or equal-sized portions of a whole unit using area models (e.g., shows a fair share of a cookie; folds a piece of paper into two halves).	**NO 3.1** Using concepts of whole units and parts, show how parts make a whole (e.g., show how parts of a brownie can make one whole brownie (area model). **NO 3.2** Show that fractional parts are equal shares or equal-sized portions of a whole unit using area models and discrete (set) models (e.g., shows a fair share of a pizza; folds a piece of paper into two halves; identifies two out of four people are wearing a blue shirt – discrete (set) model).	**NO 3.1** Using concepts of whole units and parts, show how parts make a whole (e.g., show how parts of a brownie can make one whole brownie (area model). **NO 3.2** Show that fractional parts are equal shares or equal-sized portions of a whole unit using area models and discrete (set) models (e.g., shows a fair share of a pizza; folds a piece of paper into two halves; identifies two out of four people are wearing a blue shirt – discrete (set) model).

	NO 3.3 Match fractional parts to the area models. (e.g., matches the notation ½ to one half of an apple).	**NO 3.3** Match fractional parts to the area models. (e.g., matches the notation ½ to one half of an apple). **NO 3.4** Match a fractional notation to a discrete (set) model (e.g., match the notation 2/4 to a group of two people wearing blue shirts out of a group of four people). **NO 3.5** Using fractional notation, numerator = part and denominator = whole, to show the part/whole relationship in an area model. **NO 3.6** Using fractional notation, numerator = part and denominator = whole, to show the part/whole relationship in a discrete (set) model.	**NO 3.3** Match fractional parts to the area models. (e.g., matches the notation ½ to one half of an apple). **NO 3.4** Match a fractional notation to a discrete (set) model (e.g., match the notation 2/4 to a group of two people wearing blue shirts out of a group of four people). **NO 3.5** Using fractional notation, numerator = part and denominator = whole, to show the part/whole relationship in an area model. **NO 3.6** Using fractional notation, numerator = part and denominator = whole, to show the part/whole relationship in a discrete (set) model.
		NO 3.7 Compare fractions by comparing portions with two congruent area models (e.g., compares two rectangles shaded with different portions and identifies which has the larger shaded portion). **NO 3.8** Identify fractional parts with area models and discrete (set) models using fractional notation (e.g., identify that ¾ = 3 of 4 parts of a shape).	**NO 3.7** Compare fractions by comparing portions with two congruent area models (e.g., compares two rectangles shaded with different portions and identifies which has the larger shaded portion). **NO 3.8** Identify fractional parts with area models and discrete (set) models using fractional notation (e.g., identify that ¾ = 3 of 4 parts of a shape). **NO 3.9** Recognize that parts do not need to be congruent pieces, but equivalent in area (e.g., divides a whole into same area sizes but not congruent pieces).
Number and Operation: Demonstrate conceptual understanding of rational numbers with respect to: 4. *Positive Fractional Numbers:* **Use decimals and percents to represent a part to whole relationship.**			
K-2	**3-5**	**6-8**	**High School**
	NO 4.1 Distinguish between decimal notations (e.g., 0.35) and other numbers (e.g., 35). **NO 4.2** Identify decimals within a context of money as part of 100	**NO 4.1** Distinguish between decimal notations (e.g., 0.35), percents (e.g., 35%) and other numbers (e.g., 35). **NO 4.2** Identify decimals within a	**NO 4.1** Distinguish between decimal notations (e.g., 0.35), percents (e.g., 35%) and other numbers (e.g., 35). **NO 4.2** Identify decimals within a

	(e.g., shows 10 pennies out of 100 is the same as $0.10; or $1.17 = $1.00 and 17 pennies out of 100).	context of money and/or percents as part of 100 (e.g., shows 10 pennies out of 100 is the same as $0.10 or 10%). **NO 4.3** Describe the relationship between percent and the original number (e.g., 33% percent off means a discount, or 15% increase means the number is greater than before).	context of money, percents and/or metric units as part of 100 (e.g., shows 10 pennies out of 100 is the same as $0.10; 30% or 2.5 centimeters). **NO 4.3** Describe the relationship between percent and the original number (e.g., 33% percent off means a discount, or 15% increase means the number is greater than before).

Number and Operation: Demonstrate understanding of the relative magnitude of numbers.

5. Use numbers to compare quantities by developing and understanding the position and magnitude of whole numbers (up to 199) and the connection between ordinal and cardinal numbers.

K-2	3-5	6-8	High School
NO 5.1 Demonstrate how to make more and less of a quantity (e.g., add objects to make more, subtract objects to make less). **NO 5.2** Compare two quantities to recognize equivalence or differences despite appearances (number conservation) (e.g., use different age appropriate items for comparison of quantity). **NO 5.2a** Compare two quantities as same, more, or less, using like items when arranged in the same configuration (number conservation).	**NO 5.1** Demonstrate how to make more and less of a quantity (e.g., add objects to make more, subtract objects to make less). **NO 5.2** Compare two quantities to recognize equivalence or differences despite appearances (number conservation) (e.g., use different age appropriate items for comparison of quantity). **NO 5.2a** Compare two quantities as same, more, or less, using like items when arranged in the same configuration (number conservation). **NO 5.2b** Compare two quantities as same, more, or less, using like items when arranged differently (number conservation).	**NO 5.1** No AAGSE at this grade span. **NO 5.2** Compare two quantities to recognize equivalence or differences despite appearances (number conservation) (e.g., use different age appropriate items for comparison of quantity). **NO 5.2a** Compare two quantities as same, more, or less, using like items when arranged in the same configuration (number conservation). **NO 5.2b** Compare two quantities as same, more, or less, using like items when arranged differently (number conservation). **NO 5.2c** Compare two quantities as same, more, or less, using unlike items when arranged in the same configuration (number conservation).	**NO 5.1** No AAGSE at this grade span. **NO 5.2** Compare two quantities to recognize equivalence or differences despite appearances (number conservation) (e.g., use different age appropriate items for comparison of quantity). **NO 5.2a** Compare two quantities as same, more, or less, using like items when arranged in the same configuration (number conservation). **NO 5.2b** Compare two quantities as same, more, or less, using like items when arranged differently (number conservation). **NO 5.2c** Compare two quantities as same, more, or less, using unlike items when arranged in the same configuration (number conservation).

NO 5.3 Understand and apply ordinal terms by using the terms first, second, third... to tenth accurately (e.g., identifies first person in line). **NO 5.4** No AAGSE at this grade span. **NO 5.5** No AAGSE at this grade span. **NO 5.6** No AAGSE at this grade span. **NO 5.7** Demonstrate the effects of mathematical operations on the magnitude of a whole number. **NO 5.7 a** Describe or illustrate the effects on the magnitude of a whole number when adding. (e.g., when starting with the number 5 and adding 3, is the product larger or smaller than the number 5?). **NO 5.7b** Describe or illustrate the effects on the magnitude of a whole number when subtracting. (e.g., when starting with the number 5 and subtracting 3, is the product larger or smaller than the number 5?).	**NO 5.3** Understand and apply ordinal terms by using the terms first, second, third... to tenth accurately (e.g., identifies first person in line). **NO 5.4** Use larger number principle with number sequences up to 100 (e.g., a collection of 10 is larger than 8 because 10 appears after 8 in the counting sequence). **NO 5.5** Demonstrate an understanding of the relation of inequality when comparing whole numbers by using "1 more," "1 less," "10 more," "10 less". **NO 5.6** Compare whole numbers to each other or to benchmark whole numbers (10, 25 and 50) (e.g., compare the magnitude of 20 to the benchmark of 25). **NO 5.7** Demonstrate the effects of mathematical operations, on the magnitude of a whole number. **NO 5.7 a** Describe or illustrate the effects on the magnitude of a whole number when adding. (e.g., when starting with the number 5 and adding 3, is the product larger or smaller than the number 5?). **NO 5.7b** Describe or illustrate the effects on the magnitude of a whole number when subtracting. (e.g., when starting with the number 5 and subtracting 3, is the product larger or smaller than the number 5?).	**NO 5.3** Understand and apply ordinal terms by using the terms first, second, third... to tenth accurately (e.g., identifies first person in line). **NO 5.4** Use larger number principle with number sequences up to 199 (e.g., a collection of 179 is larger than 178 because 9 appears after 8 in the counting sequence). **NO 5.5** Demonstrate an understanding of the relation of inequality when comparing whole numbers by using "1 more," "1 less," "10 more," "10 less". **NO 5.6** Compare whole numbers to each other or to benchmark whole numbers (10, 25 and 50) (e.g., compare the magnitude of 20 to the benchmark of 25). **NO 5.7** Demonstrate the effects of mathematical operations, on the magnitude of a whole number. **NO 5.7 a** Describe or illustrate the effects on the magnitude of a whole number when adding. (e.g., when starting with the number 5 and adding 3, is the product larger or smaller than the number 5?). **NO 5.7b** Describe or illustrate the effects on the magnitude of a whole number when subtracting. (e.g., when starting with the number 5 and subtracting 3, is the product larger or smaller than the number 5?). **NO 5.7c** Describe or illustrate the effects on the magnitude of a whole number when multiplying (e.g., When starting with the number 5 and	**NO 5.3** Understand and apply ordinal terms by using the terms first, second, third... to tenth accurately (e.g., identifies first person in line). **NO 5.4** No AAGSE at this grade span. **NO 5.5** Demonstrate an understanding of the relation of inequality when comparing whole numbers by using "1 more," "1 less," "10 more," "10 less". **NO 5.6** Compare whole numbers to each other or to benchmark whole numbers (10, 25 and 50) (e.g., compare the magnitude of 20 to the benchmark of 25). **NO 5.7** Demonstrate the effects of mathematical operations on the magnitude of a whole number. **NO 5.7 a** Describe or illustrate the effects on the magnitude of a whole number when adding. (e.g., when starting with the number 5 and adding 3, is the product larger or smaller than the number 5?). **NO 5.7b** Describe or illustrate the effects on the magnitude of a whole number when subtracting. (e.g., when starting with the number 5 and subtracting 3, is the product larger or smaller than the number 5?). **NO 5.7c** Describe or illustrate the effects on the magnitude of a whole number when multiplying (e.g., When starting with the number 5 and

		multiplying by 3, is the product larger or smaller than the number 5?). **NO 5.7d** Describe or illustrate the effects on the magnitude of a whole number when dividing. (e.g., when starting with number 5 and dividing by 3, is the quotient larger or smaller than the number 5?).	multiplying by 3, is the product larger or smaller than the number 5?). **NO 5.7d** Describe or illustrate the effects on the magnitude of a whole number when dividing. (e.g., when starting with number 5 and dividing by 3, is the quotient larger or smaller than the number 5?).

Number and Operation: Demonstrate understanding of the relative magnitude of numbers.
6. Represent collections and numerical relations by connecting numerals to number words and the quantities both represent.

K-2	3-5	6-8	High School
NO 6.1 Label the quantity of an empty set as 0/zero. **NO 6.2** Identify a 2-digit number.	**NO 6.1** Label the quantity of an empty set as 0/zero. **NO 6.2** Identify 2-digit and 3-digit numbers. **NO 6.3** Identify numerals 1-10 (e.g., student is able to point out a "5" given a choice of numerals). **NO 6.4** Use numbers (1-100), or words, or models to represent the cardinal value (how many) of a collection. **NO 6.5** Identify the larger of two written numbers. **NO 6.6** Identify/use the symbol for equal (=) to show number quantity relationships.	**NO 6.1** No AAGSE at this grade span. **NO 6.2** Identify 2-digit and 3-digit numbers. **NO 6.3** Identify numerals 1-10 (e.g., student is able to point out a "5" given a choice of numerals). **NO 6.4** Use numbers (1-199), or words, or models to represent the cardinal value (how many) of a collection. **NO 6.5** Identify the larger of two written numbers. **NO 6.6** Identify/use the symbol for equal (=) to show number quantity relationships.	**NO 6.1** No AAGSE at this grade span. **NO 6.2** Identify 2-digit and 3-digit numbers. **NO 6.3** Identify numerals 1-10 (e.g., student is able to point out a "5" given a choice of numerals). **NO 6.4** Use numbers (1-199), or words, or models to represent the cardinal value (how many) of a collection. **NO 6.5** Identify the larger of two written numbers. **NO 6.6** Identify/use the symbol for equal (=) to show number quantity relationships.

Number and Operation: Demonstrate conceptual understanding of mathematical operations.
7. Demonstrate a conceptual understanding of addition and subtraction of whole numbers by solving problems.

K-2	3-5	6-8	High School
NO 7.1 Demonstrate that addition means combining items and subtracting means taking away items.	**NO 7.1** Demonstrate that addition means combining items and subtracting means taking away items. **NO 7.2** Use direct-modeling to solve addition and subtraction word problems using sums of 10 or greater, identifying the correct symbol of operation (+, -). **NO 7.2a** Use sums less than 10	**NO 7.1** Show that addition means combining items and subtracting means taking away items. **NO 7.2** Use direct-modeling to solve addition and subtraction word problems using sums of 10 or greater, identifying the correct symbol of operation (+, -). **NO 7.2a** Use sums less	**NO 7.1** No AAGSE at this grade span. **NO 7.2** Use direct-modeling to solve addition and subtraction word problems using sums of 10 or greater, identifying the correct symbol of operation (+, -). **NO 7.2a** Use sums less than

	and corresponding differences, and identify the correct symbol of operation. **NO 7.3** Use strategies to compute one and two digit addition and subtraction problems. **NO 7.3a** Use strategies to compute one and two digit addition problems.	than 10 and corresponding differences and identify the correct symbol of operation. **NO 7.3** Use strategies to compute one and two digit addition and subtraction problems. **NO 7.3a** Use strategies to compute one and two digit addition problems. **NO 7.4** Translate addition and subtraction word problems and their solutions into a number sentence. (e.g., 8-3=5).	10 and corresponding differences and identify the correct symbol of operation. **NO 7.3** Use strategies to compute one and two digit addition and subtraction problems. **NO 7.3a** Use strategies to compute one and two digit addition problems. **NO 7.4** Translate addition and subtraction word problems and their solutions into a number sentence. (e.g., 8-3=5).

Number and Operation: Demonstrate conceptual understanding of mathematical operations.

8. Demonstrate a conceptual understanding of multiplication and division through concrete models.

K-2	3-5	6-8	High School
	NO 8.1 Group a small collection (e.g., make two groups of two with concrete materials). **NO 8.2** Show the relationship between repeated addition and multiplication and division and regrouping. **NO 8.3** Use direct-modeling to solve multiplication and division word problems, identifying the correct symbol of operation (e.g., x, ÷.). **NO 8.3a** Use direct-modeling to solve multiplication word problems, identifying the correct symbol of operation (e.g., x).	**NO 8.1** Group a small collection (e.g., make two groups of two with concrete materials). **NO 8.2** Show the relationship between repeated addition and multiplication and division and regrouping. **NO 8.3** Use direct-modeling to solve multiplication and division word problems, identifying the correct symbol of operation (e.g., x, ÷, or a/b). **NO 8.3a** Use direct-modeling to solve multiplication word problems, identifying the correct symbol of operation (e.g., x). **NO 8.4** Use strategies to compute one and two digit multiplication and division problems. **NO 8.4a** Use strategies to compute one and two digit multiplication problems. **NO 8.5** Translate multiplication and division word problems and	**NO 8.1** Group a small collection (e.g., make two groups of two with concrete materials). **NO 8.2** Show the relationship between repeated addition and multiplication and division and regrouping. **NO 8.3** Use direct-modeling to solve multiplication and division word problems, identifying the correct symbol of operation (x, ÷ or a/b). **NO 8.3a** Use direct-modeling to solve multiplication word problems, identifying the correct symbol of operation (e.g., x). **NO 8.4** Use strategies to compute one and two digit multiplication and division problems. **NO 8.4a** Use strategies to compute one and two digit multiplication problems. **NO 8.5** Translate multiplication and division word problems and their

		their solutions into a number sentence (e.g., 8X3=24).	solutions into a number sentence (e.g., 8X3=24).
Number and Operation: Accurately solve problems. **9. Demonstrate problem solving strategies.**			
K-2	**3-5**	**6-8**	**High School**
	NO 9.1 Accurately solve problems involving single or multiple operations using whole numbers. **NO 9.1a** Use concrete or semi-concrete representations to solve problems (e.g., concrete manipulative materials or semi-concrete pictorial representations). **NO 9.1b** Determine/select and employ correct strategy to solve problem (e.g., identifies correct operation). **NO 9.2** Determine if results make sense. **NO 9.3** Communicate procedure used to solve problems (e.g., write, use number cards, communication board).	**NO 9.1** Accurately solve problems involving single or multiple operations using whole numbers or proportional reasoning. **NO 9.1a** Use concrete or semi-concrete representations to solve problems (e.g., concrete manipulative materials or semi-concrete pictorial representations). **NO 9.1b** Determine/select and employ correct strategy to solve problem (e.g., identifies correct operation). **NO 9.2** Determine if results make sense. **NO 9.3** Communicate procedure used to solve problems (e.g., write, use number cards, communication board).	**NO 9.1** Accurately solve problems involving single or multiple operations using proportional reasoning. **NO 9.1a** Use concrete or semi-concrete representations to solve problems (e.g., concrete manipulative materials or semi-concrete pictorial representations). **NO 9.1b** Determine/select and employ correct strategy to solve problem (e.g., identifies correct operation). **NO 9.2** Determine if results make sense. **NO 9.3** Communicate procedure used to solve problems (e.g., write, use number cards, communication board).
Number and Operation: Demonstrate understanding of monetary value. **10. Identify coins and/or bills.**			
K-2	**3-5**	**6-8**	**High School**
NO 10.1 Identify coins: penny, nickel, dime, and quarter.	**NO 10.1** Identify coins: penny, nickel, dime, and quarter. **NO 10.2** Identify bills: $1.00, $5.00, $10.00, and $20.00 bills. **NO 10.2a** Identify $1.00 and $5.00 bills.	**NO 10.1** Identify coins: penny, nickel, dime, and quarter. **NO 10.2** Identify bills: $1.00, $5.00, $10.00, and $20.00 bills. **NO 10.2a** Identify $1.00 and $5.00 bills. **NO 10.2b** Identify $1.00,	**NO 10.** 1 No AAGSE at this grade span. **NO 10.2** Identify bills: $1.00, $5.00, $10.00, and $20.00 bills.

		$5.00 and $10.00 bills.	

Number and Operation: Demonstrate understanding of monetary value.
11. Identify coin and/or bill value.

K-2	3-5	6-8	High School
NO 11.1 Identify the value of coins: penny as 1¢, nickel as 5 pennies or 5¢, dime as 10 pennies or 10¢, a quarter as 25 pennies or 25¢.	**NO 11.1** Identify the value of coins: penny as 1¢, nickel as 5 pennies or 5¢, dime as 10 pennies or 10¢, a quarter as 25 pennies or 25¢.	**NO 11.1** Identify the value of coins: penny as 1¢, nickel as 5 pennies or 5¢, dime as 10 pennies or 10¢, a quarter as 25 pennies or 25¢. **NO 11.2** Identify the value of bills and how they are related to each other: $1.00 as 100 pennies or 100¢, $5.00 as 5 $1.00 bills, $10.00 as two $5.00 bills or 10 $1.00 bills, $20.00 as two $10.00 bills or 20 $1.00 bills.	**NO 11.1** No AAGSE at this grade span. **NO 11.2** Identify the value of bills and how they are related to each other: $1.00 as 100 pennies or 100¢, $5.00 as 5 $1.00 bills, $10.00 as two $5.00 bills or 10 $1.00 bills, $20.00 as two $10.00 bills or 20 $1.00 bills.

Number and Operation: Demonstrate understanding of monetary value.
12. Count and add a collection of coins and/or bills.

K-2	3-5	6-8	High School
NO 12.1 Find possible combinations of coins to equal 25¢ and/or 50¢. **NO 12.2** Add like and unlike coin collections together to equal dollars and cents notation. **NO 12.2a** Add like coins together to equal dollars and cents notation.	**NO 12.1** Find possible combinations of coins to equal 25¢ and 50¢. **NO 12.2** Add like and unlike coin collections together to equal dollars and cents notation. **NO 12.2a** Add like coins together to equal dollar and cents notation. **NO 12.2b** Add unlike coin collections together to equal dollars and cents notation.	**NO 12.1** No AAGSE at this grade span. **NO 12.2** Add like and unlike coin collections together to equal dollars and cents notation. **NO 12.2a** Add like coins together to match dollar and cents notation. **NO 12.2b** Add unlike coin collections together to equal dollars and cents notation. **NO 12.3** Add like and unlike bills together to equal dollars and cents notation. **NO 12.3a** Add like bills together to match dollar and cents notation. **NO 12.3b** Add unlike bills together to equal dollars and cents notation.	**NO 12.1** No AAGSE at this grade span. **NO 12.2** Add like and unlike coin collections together to equal dollars and cents notation. **NO 12.2a** Add like coins together to equal dollar and cents notation. **NO 12.2b** Add unlike coin collections together to equal dollars and cents notation. **NO 12.3** Add like and unlike bills together to equal dollars and cents notation. **NO 12.3a** Add like bills together to match dollar and cents notation. **NO 12.3b** Add unlike bills together to equal dollars and cents notation.

		NO 12.4 Add bills together. **NO 12.5** Add bills and coins together to match cents and dollar notation. **NO 12.6** Make change from $1.00 or less.	**NO 12.4** Add bills together. **NO 12.5** Add bills and coins together to match cents and dollar notation. **NO 12.6** Make change from $5.00 or less.
Number and Operation: Demonstrate Calculations. **13. Demonstrate fluency with basic addition and subtraction combinations (up to 10) regardless of strategy used.**			
K-2	**3-5**	**6-8**	**High School**
NO 13.1 Use concrete (cubes) materials to show more or less than the original number (e.g., show two more than 5 cubes). **NO 13.2** Use semi-concrete materials (hundreds' chart, number line) to show more or less than the original number.	**NO 13.1** Use concrete (cubes) materials to show more or less than the original number (e.g., show two more than 5 cubes). **NO 13.2** Use semi-concrete materials (hundreds' chart, number line) to show more or less than the original number. **NO 13.3** Use concrete or semi-concrete materials for addition and subtraction of number combinations (1-10).	**NO 13.1** No AAGSE at this grade span. **NO 13.2** Use semi-concrete materials (hundreds' chart, number line) to show more or less than the original number. **NO 13.3** Use semi-concrete materials for addition and subtraction of number combinations (1-10).	**NO 13. 1** No AAGSE at this grade span. **NO 13.2** Use semi-concrete materials (hundreds' chart, number line) to show more or less than the original number. **NO 13.3** Use semi-concrete materials for addition and subtraction of number combinations (1-10).
Number and Operation: Demonstrate Calculations. **14. Fluently know number combinations (1-20) for addition and subtraction.**			
K-2	**3-5**	**6-8**	**High School**
		NO 14.1 Use strategies to reason out unknown sums to 20 and their subtraction counterparts (e.g., counting-on, double plus or minus, making tens, using compensation, and/or using known facts).	**NO 14.1** Use strategies to reason out unknown sums to 20 and their subtraction counterparts (e.g., counting-on, double plus or minus, making tens, using compensation, and/or using known facts).
Number and Operation: Demonstrate Calculations. **15. Fluently add and subtract two digit multiples of ten.**			
K-2	**3-5**	**6-8**	**High School**
	NO 15.1 Use concrete and semi-concrete materials to show addition or subtraction with two digit multiples of ten. **NO 15.1a** Use concrete materials to show addition or subtraction with two	**NO 15.**1 Use concrete and semi-concrete materials to show addition or subtraction with two digit multiples of ten. **NO 15.1a** No AAGSE at this grade span.	**NO 15.1** Use concrete and semi-concrete materials to show addition or subtraction with two digit multiples of ten. **NO 15.1a** No AAGSE at this grade span.

	digit multiples of ten.	**NO 15.2** Use strategies to solve addition or subtraction problems with multiples of 10 more or less than the original number (e.g., the sum of 30+20=30+10+10).	**NO 15.2** Use strategies to solve addition or subtraction problems with multiples of 10 more or less than the original number (e.g., the sum of 30+20=30+10+10).
Number and Operation: Demonstrate Calculations. **16. Add and subtract two digit numbers.**			
K-2	**3-5**	**6-8**	**High School**
		NO 16.1 Add and subtract two digit numbers with student identified strategy (e.g., mental calculations, algorithms, counting up and counting down, using concrete and semi-concrete materials).	**NO 16.1** Add and subtract two digit numbers with student identified strategy (e.g., mental calculations, algorithms, counting up and counting down, using concrete and semi-concrete materials).
Number and Operation: Make Estimates. **17. Make estimates of the number of objects in a set up to 20.**			
K-2	**3-5**	**6-8**	**High School**
NO 17.1 Use comparisons to estimate size of a collection, up to five, without counting (e.g., are there enough chairs compared to the five students who need them?).	**NO 17.1** Use comparisons to estimate size of a collection, up to 10, without counting (e.g., are there enough chairs compared to the 10 students who need them?).	**NO 17.1** Use comparisons to estimate size of a collection, up to 15, without counting (e.g., are there enough chairs compared to the 15 students who need them?). **NO 17.2** Make estimates in a given situation and explain the reasonableness of the solution (e.g., if there are seven students and five yards of ribbon and every student needs 1 yard of ribbon, is there enough ribbon for everyone? Explain your answer.) **NO 17.2a** Make estimates in a given situation (e.g., if there	**NO 17.1** Use comparisons to estimate size of a collection, up to 20, without counting (e.g., are there enough chairs compared to the 20 students who need them?). **NO 17.2** Make estimates in a given situation and explain the reasonableness of the solution (e.g., if there are seven students and five yards of ribbon and every student needs 1 yard of ribbon, is there enough ribbon for everyone? Explain your answer.) **NO 17.2a** Make estimates in a given situation (e.g., if there are eight students

		are eight students and ten yards of ribbon and every student needs one yard of ribbon, is there enough ribbon for everyone?).	and ten yards of ribbon and every student needs one yard of ribbon, is there enough ribbon for everyone?).

Number and Operation: Make Estimates.

18. Make estimates of the number of objects in a set up to 100.

K-2	3-5	6-8	High School
			NO 18.1 Estimate the size of a collection, up to 100, without counting (e.g., Are there more than 70 marbles in the jar?).

Number and Operation: Apply properties of numbers and field properties to solve problems and to simplify computation involving whole numbers.

19. Apply appropriate properties of a number.

K-2	3-5	6-8	High School
	NO 19.1 Identify odd and even numbers. **NO 19.2** Use composition and decomposition of numbers to identify number families (e.g., 2+3=5, 3+2=5, 5-3=2, and 5-2=3).	**NO 19.1** Identify odd and even numbers. **NO 19.2** Use composition and decomposition of numbers to identify number families (e.g., 2+3=5, 3+2=5, 5-3=2, and 5-2=3). **NO 19.3** Recognize or provide examples of the commutative property of addition (e.g., 3+5 is the same as 5+3). **NO 19.4** Recognize or show that adding zero to any number gives that number (additive identity) (e.g., 5+0=5).	**NO 19.1** Identify odd and even numbers. **NO 19.2** Use composition and decomposition of numbers to identify number families (e.g., 2+3=5, 3+2=5, 5-3=2, and 5-2=3) **NO 19.3** Identify or provide examples of the commutative property of addition (e.g., 3+5 is the same as 5+3). **NO 19.4** Identify or show that adding zero to any number gives that number (additive identity) (e.g., 5+0=5). **NO 19.5** Identify or show that when adding 3 or more numbers, the order in which you combine them does not matter (e.g., (3+5) + 2 = 3+ (5+2) (associative of addition).

Standard: Data, Statistics, and Probability (DSP)

DSP 1. Interpret a given representation (e.g., tables, graphs) to answer questions related to the data.			
K-2	**3-5**	**6-8**	**High School**
	DSP 1.1 Describe the features (e.g. title, bars, line, labels, key) of a data display (e.g., using a pictograph, where do you find the information that tells what the pictures represent?) **DSP 1.2** Answer questions about parts of the data and/or the set of data as a whole (e.g., identifying how many in one category or what the data set represents, (e.g., given a bar graph answer the following questions: what was the number of students in our school last year (sets of data), which grade has the most students (part of data).	**DSP 1.1** Describe the features (e.g. title, bars, line, labels, key) of a data display (e.g., using a bar graph, where do you find the information that tells what the bars represent?) **DSP 1.2** Answer questions about parts of the data and/or the set of data as a whole (e.g., identifying how many in one category or what the data set represents, given a bar graph, answer the following questions: what was the number of students in our school last year (sets of data), which grade has the most students (part of data). **DSP 1.3** Answer questions about parts of the data using more than one type of data displays (e.g., pictograph and bar graph).	**DSP 1.1** Describe the features (e.g. title, bars, line, labels, key) of a data display (e.g., using a line graph, where do you find the information that tells what the lines represent?) **DSP 1.2** Answer questions about parts of the data and/or the set of data as a whole (e.g., identifying how many in one category or what the data set represents, (e.g., given a bar graph answer the following questions: what was the number of students in our school last year (sets of data), which grade has the most students (part of data). **DSP 1.3** Answer questions about parts of the data using more than one type of data displays (e.g., circle graph and line graph).
DSP 2. Analyze patterns, trends, or distributions (e.g., tables, graphs) in data.			
K-2	**3-5**	**6-8**	**High School**
	DSP 2.1 Demonstrate simple comparisons (fewer, more, less) by using the data (e.g., comparing the number of boys and girls in the class). **DSP 2.2** Make observational statements about all or parts of the data (e.g., compare the number of boys and girls in the class) using comparison words (fewer, more, less, equal, most frequent),	**DSP 2.1** Demonstrate simple comparisons (fewest, most, least, equal) by using the data (e.g., after looking at the bars, which of the bars has the fewest). **DSP 2.2** Make observational statements about all or parts of the data (e.g., compare the number of boys and girls in the class) using comparison words (fewer, more, less, equal, most frequent). **DSP 2.3** Make observational statements about the overall trend by using the distribution of data.	**DSP 2.1** Demonstrate simple comparisons (fewest, most, least, equal) using the data (e.g., comparing the number of boys and girls in the class). **DSP 2.2** Make observational statements about all or parts of the data (e.g., compare the number of boys and girls in the class) using comparison words (fewer, more, less, equal, most frequent). **DSP 2.3** Make observational statements about the overall trend by using the distribution of data.

DSP 3. Identify or describes representations that best display a given set of data and organize and display data.			
K-2	**3-5**	**6-8**	**High School**
	DSP 3.1 Given data, sort by general categories and represent the data in a given data display (e.g., after sorting by color, the student is told to organize the data in a pictograph.)	**DSP 3.1** Given data, sort by general categories and represent the data in a given data display (e.g., after sorting student votes, the student is told to organize the data in a bar graph.) **DSP 3.2** Given data, select the display that best represents the data.	**DSP 3.1** Given data, sort by general categories and sub-categories and represent the data in a given data display (e.g., how many students have brown eyes or how many girls have brown eyes?) **DSP 3.2** Given data, select the display that best represents the data. **DSP 3.3** Display data using a variety of representations (e.g., pictures, bar graphs, line graphs and line plots, tables, circle graphs).

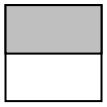
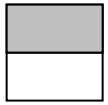
DSP 4.Use counting techniques to solve problems involving combinations.			
K-2	**3-5**	**6-8**	**High School**
		DSP 4.1 Use counting techniques to solve problems involving combinations (e.g., find all the coin combinations to make $0.25 or $0.50) or tree diagrams (e.g. find all the clothing combinations possible with 2 different pairs of pants and 3 different shirts).	**DSP 4.1** Use counting techniques to solve problems involving combinations (e.g., find all the coin combinations to make $0.25, $0.50, and/or $1.00) or tree diagrams (e.g. find all the clothing combinations possible with 2 different pairs of pants and 3 different shirts).

DSP 5. For a probability event in which the sample space may or may not contain equally likely outcomes, determine the likelihood of the occurrence of an event.			
K-2	**3-5**	**6-8**	**High School**
		DSP 5.1 Identify ideas related to probability: more likely, less likely, and equally likely using simple randomizing devices (e.g. spinners, number cubes). **DSP 5.2** Make predictions about the probability of an event occurring (e.g., use two spinners, one with two colors and one with two numbers, to show the possible	**DSP 5.1** Identify ideas related to probability: more likely, less likely, and equally likely using simple randomizing devices (e.g. spinners, number cubes). **DSP 5.2** Make predictions about the probability of an event occurring (e.g., use two spinners, one with two colors and one with two numbers, to show the possible

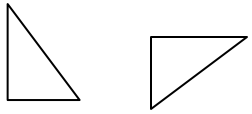
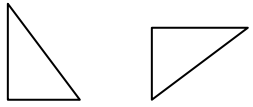
		outcomes when each spinner is spun). **DSP 5.3** Justify a conclusion based on data from the sample space (e.g., show how you got the possible combinations).	outcomes when each spinner is spun). **DSP 5.3** Justify a conclusion based on data from a sample space (e.g., show how you got the possible combinations) **DSP 5.4** Predict the likelihood of an event occurring and record the outcomes (e.g., tossing a coin and getting heads).
DSP 6. In response to a teacher or student generated question or hypothesis, group or collect data to answer the question.			
K-2	**3-5**	**6-8**	**High School**
	DSP 6.1 Determine an effective method to collect data to answer the question or test a hypothesis (e.g., complete a survey, observation, experiment, investigation). **DSP 6.2** Collect and record data to answer the question or test a hypothesis. **DSP 6.3** Organize and display data to answer the question or test a hypothesis.	**DSP 6.1** Determine an effective method to collect data to answer the question or hypothesis (e.g., complete a survey, observation, experiment, investigation). **DSP 6.2** Collect and record data to answer the question or test a hypothesis. **DSP 6.3** Organize and display data to answer the question or test a hypothesis.	**DSP 6.1** Determine an effective method to collect data to answer the question or hypothesis (e.g., complete a survey, observation, experiment, investigation). **DSP 6.2** Collect and record data to answer the question or test a hypothesis. **DSP 6.3** Organize and display data to answer the question or test a hypothesis. **DSP 6.4** Analyze the data to draw conclusions about the question or hypothesis being tested.

Standard: Geometry and Measurement (GM)

GM 1. Use properties or attributes of polygons or angles or sides.
Use properties or attributes (angles and sides) of polygons to name, sort, classify and describe polygons.

K-2	3-5	6-8	High School
GM 1.1 Identify, name, classify, and sort 2-D shapes. **GM 1.1a** Identify the geometric shapes of rectangles, squares and triangles. **GM 1.1b** Sort polygons by their attributes (e.g., all triangles of different sizes and angles have 3 sides and 3 vertices so are grouped together). **GM 1.2** Describe attributes of a 2-D shape, i.e.., sides and angles (e.g., when the classroom is mapped, the student describes the rectangle, symbolizing a table, as having 4 sides). **GM 1.3** Use 2-D objects to compose (put together) 2-D shapes to make a specific polygon (e.g., use two trapezoids to make a hexagon or use two rectangles to make a square). 	**GM 1.1** Identify, name, classify and sort 2-D shapes. **GM 1.1a** Identify the geometric shapes of rectangles, squares and triangles. **GM 1.1b** Sort polygons by their attributes, regardless of orientation (e.g., all triangles of different sizes and angles have 3 sides and 3 vertices so are grouped together). **GM 1.1c** Identify congruent and non-congruent polygons and justify congruency (e.g., given 3 triangles, identify the two that are the same size and shape by putting one on top of the other shape). **GM 1.2** Describe attributes of a 2-D shape, i.e.., sides and angles (e.g., when the classroom is mapped, the student describes the rectangle, symbolizing a table, as having 4 sides). **GM 1.3** Use 2-D objects to compose (put together) 2-D shapes to make a specific polygon (e.g., use two trapezoids to make a hexagon or use two rectangles to make a square). 	**GM 1.1** Identify, name, classify and sort 2-D shapes. **GM 1.1a** Identify the geometric shapes of rectangles, squares, triangles, hexagons, trapezoids, pentagons). **GM 1.1b** Sort polygons by their attributes, regardless of orientation (e.g., all triangles of different sizes and angles have 3 sides and 3 vertices so are grouped together). **GM 1.1c** Identify congruent and non-congruent polygons and justify congruency (e.g., given 3 triangles, identify the two that are the same size and shape by putting one on top of the other shape). **GM 1.2** Describe attributes of a 2-D shape, i.e., sides and angles, (e.g., using a map of the United States, a student describes why a triangle is used to indicate a mountain). **GM 1.3** Use 2-D objects to compose and decompose 2-D shapes to make a specific polygon (e.g., use two trapezoids to make a hexagon or use a rectangle to make two squares). 	**GM 1.1** Identify, name, classify and sort 2-D shapes. **GM 1.1a** Name figures by their geometric shapes, regardless of size or orientation (e.g., rectangles, squares, triangles, hexagons, trapezoids, pentagons). **GM 1.1b** Sort polygons by their attributes, regardless of orientation (e.g., all triangles of different sizes and angles have 3 sides and 3 vertices so are grouped together). **GM 1.1c** Identify congruent and non-congruent polygons and justify congruency (e.g., given 3 triangles, identify the two that are the same size and shape by putting one on top of the other shape). **GM 1.2** No AAGSE at this grade span. **GM 1.3** Use 2-D objects to compose and decompose 2-D shapes to make a specific polygon (e.g., use two trapezoids to make a hexagon or use a rectangle to make two squares). 

GM 2. Apply theorems or relationships to:			
Solve problems.			
K-2	**3-5**	**6-8**	**High School**
	GM 2.1 Use properties or attributes (e.g., number of sides, sizes of angles, shape) to describe or compare 2-D shapes.	**GM 2.1** Use properties or attributes (e.g., number of sides, sizes of angles, shape to describe or compare 2-D shapes. **GM 2.2** Identify the different types of angles. **GM 2.2a** Identify a right angle.	**GM 2.1** Use properties or attributes (e.g., number of sides, sizes of angles, shape) to describe or compare 2-D shapes. **GM 2.2** Identify the different types of angles. **GM 2.2a** Identify a right angle. **GM 2.2b** Differentiate right angles from other angles (e.g., acute and obtuse angles). **GM 2.3** Identify parallel, perpendicular and intersecting lines or sides.
GM 3. Use properties or attributes of three-dimensional shapes.			
Identify, compare, and describe 3-D shapes.			
K-2	**3-5**	**6-8**	**High School**
GM 3.1 Identify, describe, compare, and sort 3-D concrete shapes (e.g., cube, sphere, cone, cylinder). **GM 3.1a** Identify 3-D concrete shapes. **GM 3.1b** Sort 3-D concrete shapes (e.g., sorting cubes from cones).	**GM 3.1** Identify, describe, compare, and sort 3-D concrete shapes (e.g., cube, sphere, cone, cylinder). **GM 3.1a** Identify 3-D concrete shapes. **GM 3.1b** Sort 3-D concrete shapes (e.g., sorting cubes from cones).	**GM 3.1** Identify, describe, compare, and sort 3-D concrete shapes (e.g., cube, sphere, cone, cylinder). **GM 3.1a** Identify 3-D concrete shapes. **GM 3.1b** Sort 3-D concrete shapes (e.g., sorting cubes from cones or cylinders from spheres). **GM 3.1c** Describe and compare 3-D concrete shapes using their attributes (the number of faces and vertices).	**GM 3.1** Identify, describe, compare, and sort 3-D concrete shapes (e.g., cube, sphere, cone, cylinder; e.g. identifying shapes of a dollar and a coin when counting money at a job placement). **GM 3.1a.** Identify 3-D concrete objects. **GM 3.1b** No AAGSE at this grade span. **GM 3.1c** Describe and compare 3-D concrete objects using their attributes (the number of bases, faces, and vertices).

GM 4. Demonstrate conceptual understanding of congruency.			
Use symmetry and transformations.			
K-2	**3-5**	**6-8**	**High School**
GM 4.1 Identify or create shapes that have line symmetry. **GM 4.1a** Identify lines of symmetry in a shape (e.g., folding in half, using a mirror, etc.). **GM 4.1b** Create 2-D shapes that have line symmetry. **GM 4.2** Compose and decompose shapes using line symmetry to demonstrate congruent parts within a shape.	**GM 4.1** Identify and create shapes that have line symmetry. **GM 4.1a** Identify lines of symmetry in a shape (e.g., folding in half, using a mirror, etc.). **GM 4.1b** Create 2-D shapes that have line symmetry**.** **GM 4.2** Use spatial planning (foresight) to compose and decompose shapes using line symmetry to demonstrate congruent parts within a shape (e.g., use two congruent trapezoids to make a hexagon). **GM 4.3** Match congruent figures using reflections, translations, or rotations (flips, slides, or turns) (e.g., move one shape on top of another to compare their sizes and shapes).	**GM 4.1** Identify and create shapes that have line symmetry. **GM 4.1a** Identify lines of symmetry in a shape (e.g., folding in half, using a mirror, etc.). **GM 4.1b** Create 2-D shapes that have line**.** **GM 4.2** Use spatial planning (foresight) to compose and decompose shapes using line symmetry to demonstrate congruent parts within a shape (e.g., use two congruent trapezoids to make a hexagon). **GM 4.3** Match congruent figures using reflections, translations, or rotations (flips, slides, or turns) (e.g., move one shape on top of another to compare their sizes and shapes). **GM 4.4** Describe the transformational steps (i.e., reflection, translations, or rotations) needed to show congruency (e.g., rotate a triangle 90 degrees clockwise to get: 	**GM 4.1** Identify and create shapes that have line symmetry. **GM 4.1a** Identify lines of symmetry in a shape (e.g., folding in half, using a mirror, etc.). **GM 4.1b** Create 2-D shapes that have line symmetry. **GM 4.2** Use spatial planning (foresight) to compose and decompose shapes using line symmetry to demonstrate congruent parts within a shape (e.g., use two congruent trapezoids to make a hexagon). **GM 4.3** Match congruent figures using reflections, translations, or rotations (flips, slides, or turns) (e.g., move one shape on top of another to compare their sizes and shapes). **GM 4.4** Describe the transformational steps (i.e., reflection, translations, or rotations) needed to show congruency (e.g., rotate a triangle 90 degrees clockwise to get:  **GM 4.5** Predict outcomes of transformations on 2-D shapes (e.g., model, draw, or describe the results of a transformation).

GM 5. Demonstrate conceptual understanding of similarity.			
K-2	**3-5**	**6-8**	**High School**
	GM 5.1 Identify and compare similar shapes from a group of shapes. **GM 5.1a** Match shape (from a group of shapes) with another same size, shape, and orientation (e.g., match two same size and shape rectangles). **GM 5.1b** Match two same shapes (from a group of shapes) of different sizes (e.g., match two different size triangles with same angles/shape and same orientation).	**GM 5.1** Identify and compare similar shapes from a group of shapes. **GM 5.1a** Match shapes (from a group of shapes) with another same size, shape, and orientation (e.g., match two same size and shape rectangles). **GM 5.1b** Match two same shapes (from a group of shapes) of different sizes (e.g., match two different size triangles with same angles/shape and same orientation). **GM 5.1c** Match similar shapes with different orientations. **GM 5.1d** Explain why two shapes are similar or not similar.	**GM 5.1** Identify and compare similar shapes from a group of shapes. **GM 5.1a** Match shapes (from a group of shapes) with another same size, shape, and orientation (e.g., match two same size and shape rectangles). **GM 5.1b** Match two same shapes (from a group of shapes) of different sizes (e.g., match two different size triangles with same angles/shape and same orientation). **GM 5.1c** Match similar shapes with different orientations. **GM 5.1d** Explain why two shapes are similar or not similar.
GM 6. Demonstrate conceptual understanding of perimeter and area.			
K-2	**3-5**	**6-8**	**High School**
GM 6.1 Demonstrate conceptual understanding of perimeter of a two-dimensional object. **GM 6.1a** Compare lengths of sides (length, height) of a figure using language (such as “bigger,” “smaller,” “longer,” “shorter,” “taller” “same,” etc.). **GM 6.1b** Show	**GM 6.1** Demonstrate conceptual understanding of perimeter of a two-dimensional object or figure (e.g., rectangle, circle, oval, or combinations of figures; e.g. use string to measure the perimeter of a circular object such as a hula hoop). **GM 6.1a** Compare lengths of sides (length, height) of a figure using language (such as “bigger,” “smaller,” “longer,” “shorter,” “taller” “same,” etc.). **GM 6.1b** Show	**GM 6.1** Demonstrate conceptual understanding of perimeter of a two-dimensional object or figure (e.g., rectangle, circle, oval, or combinations of figures; e.g. use string to measure the perimeter of a circular object such as the perimeter of a hole to plant a tree. **GM 6.1a** Compare lengths of sides (length, height) of a figure using language (such as “bigger,” “smaller,” “longer,” “shorter,” “taller” “same,” etc.). **GM 6.1b** Show	**GM 6.1** Demonstrate conceptual understanding of perimeter of a two-dimensional object or figure (e.g., rectangle, circle, oval, or combinations of figures; e.g. use string to measure the perimeter of a circular object such as the perimeter of a hole to plant a tree. **GM 6.1a** Compare lengths of sides (length, height) of a figure using language (such as “bigger,” “smaller,” “longer,” “shorter,” “taller” “same,” etc.). **GM 6.1b** Show

understanding of unit iteration (placing units/objects end to end in some manner with no gaps) for length measurement.	understanding of unit iteration (placing units/objects end to end in some manner with no gaps) for length measurement. **GM 6.1c** Use both conventional rulers and manipulative units that are standard units, (such as centimeter cubes) to measure perimeter of 2-D figures. **GM 6.2** Demonstrate conceptual understanding of area of a two-dimensional object or figure. **GM 6.2a** Compare area by placing one object on top of another to determine which has more space. **GM 6.2b** Demonstrate understanding of area by covering rectangles with unit tiles (e.g., use grid paper to determine area of rectangles).	understanding of unit iteration (placing units/objects end to end in some manner with no gaps) for length measurement. **GM 6.1c** Use both conventional rulers and manipulative units that are standard units, (such as centimeter cubes) to measure perimeter of 2-D figures. **GM 6.2** Demonstrate conceptual understanding of area of a two-dimensional object or figure. **GM 6.2a** Compare area by placing one object on top of another to determine which has more space. **GM 6.2b** Demonstrate understanding of area by covering rectangles with unit tiles (e.g., use grid paper to determine area of rectangles). **GM 6.3c** Identify structure of an array (rows and columns arrangement) to find area of rectangles (e.g., "3 in each row and 2 rows make 6 square units).	understanding of unit iteration (placing units/objects end to end in some manner with no gaps) for length measurement. **GM6.1c** Use both conventional rulers and manipulative units that are standard units, (such as centimeter cubes) to measure perimeter of 2-D figures. **GM 6.2** Demonstrate conceptual understanding of area of a two-dimensional object or figure. **GM 6.2a** Compare area by placing one object on top of another to determine which has more space. **GM 6.2b** Demonstrate understanding of area by covering rectangles with unit tiles (e.g., use grid paper to determine area of rectangles). **GM 6.3c** Identify structure of an array (rows and columns arrangement) to find area of rectangles (e.g., "3 in each row and 2 rows make 6 square units).

GM 7. Demonstrate conceptual understanding of measurable attributes using comparative language.

K-2	3-5	6-8	High School
GM 7.1 Describe and compare measureable attributes of objects. **GM 7.1a** Compare and communicate length, height, and weight of objects using language such as "longer/shorter," as "taller/shorter," "heavier/lighter". **GM 7.1b** Compare and	**GM 7.1** Describe and compare measureable attributes of objects. **GM 7.1a** Compare and communicate length, height, and weight of objects using language such as "longer/shorter," as "taller/shorter," "heavier/lighter". **GM 7.1b** Compare and	**GM 7.1** Describe and compare measureable attributes of objects. **GM 7.1a** Compare and communicate length, height, and weight of objects using language such as "longer/shorter," as "taller/shorter," "heavier/lighter". **GM 7.1b** Compare and	**GM 7.1** Describe and compare measureable attributes of objects. **GM 7.1a** Compare and communicate length, height, and weight of objects using language such as "longer/shorter," as "taller/shorter," "heavier/lighter". **GM 7.1b** Compare and

communicate temperature using measurement language such as "warmer/cooler/same".	communicate temperature using measurement language such as "warmer/cooler/same". **GM 7.2** Measure and use units of measure appropriately. **GM 7.2a** Use both conventional rulers and manipulative units that are standard units, (such as centimeter cubes) to measure length and height. **GM 7.2b** No AAGSE at this grade span. **GM 7.2c** Use a thermometer to measure temperature. **GM 7.2d** No AAGSE at this grade span. **GM 7.2e** Use repetition of a single unit to measure something larger than the unit, such as measuring the length of room with a single meter stick.	communicate temperature using measurement language such as "warmer/cooler/same". **GM 7.2** Measure and use units of measure appropriately. **GM 7.2a** Use both conventional rulers and manipulative units that are standard units, (such as centimeter cubes) to measure length and height. **GM 7.2b**Use balance and spring scales to measure weight and mass. **GM 7.2c** Use a thermometer to measure temperature. **GM 7.2d** Select and identify appropriate tool for the attribute being measured. **GM 7.2e** Use repetition of a single unit to measure something larger than the unit, such as measuring the length of room with a single meter stick.	communicate temperature using language such as "warmer/cooler/same". **GM 7.2** Measure and use units of measure appropriately. **GM 7.2a** Use both conventional rulers and manipulative units that are standard units, (such as centimeter cubes) to measure length and height. **GM 7.2b** Use balance and spring scales to measure weight and mass. **GM 7.2c** Use a thermometer to measure temperature. **GM 7.2d** Select and identify appropriate tool for the attribute being measured. **GM 7.2e** Use repetition of a single unit to measure something larger than the unit, such as measuring the length of room with a single meter stick.
GM 8. Determine elapsed and accrued time.			
K-2	**3-5**	**6-8**	**High School**
GM 8.1 Develop concept of time, using calendars, clocks, and schedules. **GM 8.1a** Describe passage of time using terms such as: "day and night,"; "morning, afternoon and night," "yesterday, today and tomorrow." **GM 8.1b** Using a.m. and p.m., connect the time of day to daily activities or events.	**GM 8.1** Develop concept of time, using calendars, clocks, and schedules. **GM 8.1a** Describe passage of time using terms such as: "day and night,"; "morning, afternoon and night," "yesterday, today and tomorrow". **GM 8.1b** Using a.m. and p.m., connect the time of day to daily activities or events. **GM 8.1c** Identify what comes	**GM 8.1** Develop concept of time, using calendars, clocks, and schedules. **GM 8.1a** Describe passage of time using terms such as: "day and night,"; "morning, afternoon and night," "yesterday, today and tomorrow". **GM 8.1b** Using a.m. and p.m., connect the time of day to daily activities or events. **GM 8.1c** Identify what comes	**GM 8.1** Develop concept of time, using calendars, clocks, and schedules. **GM 8.1a** Describe passage of time using terms such as: "day and night,"; "morning, afternoon and night," "yesterday, today and tomorrow". **GM 8.1b** Using a.m. and p.m., connect the time of day to daily activities or events. **GM 8.1c** Identify what comes

	next using a schedule or calendar (e.g., using a monthly school calendar). **GM 8.1d** Distinguish between time units (e.g., minutes and hours, days and years).	next using a schedule or calendar (e.g., in a sports team schedule). **GM 8.1d** Distinguish between time units (e.g., seconds, minutes and hours, days, months, and years).	next using a schedule or calendar (e.g., in a bus schedule). **GM 8.1d** Distinguish between time units (e.g., seconds, minutes and hours, days, months, and years).
GM 8.2 Develop ways to measure time. **GM 8.2a** Use calendars to determine passage of time (e.g., how many more days until…).	**GM 8.2** Develop ways to measure time. **GM 8.2a** Use calendars to determine passage of time (e.g., how many more days until). **GM8.2b** Use clocks to measure and communicate time to the nearest hour and half hour. (e.g., a student correctly identifies the time as 1:00 pm by looking at an analog or digital clock). **GM 8.2c** Use timers and clocks to measure and communicate the duration of time (e.g., a student uses a stop watch to measure the amount of time it takes to walk around the school).	**GM 8.2** Develop ways to measure time. **GM 8.2a** Use calendars to determine passage of time (e.g., how many more days until…,). **GM 8.2b** Use clocks to measure and communicate time to the nearest hour and half hour (e.g., a student correctly identifies the time as 1:00 pm by looking at an analog or digital clock). **GM 8.2c** Use timers and clocks to measure and communicate the duration of time (e.g., a student uses a stop watch to measure the amount of time it takes to change classes). **GM 8.2d** Solve problems involving elapsed time (e.g., "If it was 7:30 when David left home, what time will he arrive to school if it takes him one hour to travel to school?).	**GM 8.2** Develop ways to measure time. **GM 8.2a** Use calendars to determine or describe passage of time (e.g., how many more days until…,). **GM 8.2b 2b** Use clocks to measure and communicate time to the nearest hour and half hour (e.g., a student correctly identifies the time as 1:00 pm by looking at an analog or digital clock). **GM 8.2c** Use timers and clocks to measure and communicate the duration of time (e.g., a student uses a stop watch to measure the amount of time it takes to get to the work site). **GM 8.2d** Solve problems involving elapsed time (e.g., "If it was 7:30 when David left home, what time will he arrive to school if it takes him one hour to travel to school?).
GM 9. Demonstrate understanding of spatial relationships using location and position.			
K-2	**3-5**	**6-8**	**High School**
GM 9.1 Identify or demonstrate relative positions in space. **GM 9.1a** Follow positional descriptions such as over, under, near, far, between, left, right, above, below, on, beside, next to, to locate relative positions of objects in	**GM 9.1** Identify or demonstrate relative positions in space. **GM 9.1a** Follow positional descriptions such as over, under, near, far, between, left, right, above, below, on, beside, next to, to locate relative positions of objects in	**GM 9.1** Identify or demonstrate relative positions in space. **GM 9.1a** Follow positional descriptions such as over, under, near, far, between, left, right, above, below, on, beside, next to, to locate relative positions of objects in	**GM 9.1** Identify or demonstrate relative positions in space. **GM 9.1a** Follow positional descriptions such as over, under, near, far, between, left, right, above, below, on, beside, next to, to locate relative positions of objects in

space. **GM 9.2** Create and use simple maps. **GM 9.2a** Using a map, move from one place to another along a defined path (e.g., move from a student's desk to the teacher's desk).	space. **GM 9.1b** Use positional descriptions to identify location of objects in space. **GM 9.2** Create and use simple maps. **GM 9.2a** Using a map, move from one place to another along a defined path (e.g., move from a student's desk to the teacher's desk). **GM 9.2b** Use navigation concepts, such as left, right, forward, backward, tactile, localizing and tracking to move along a path.	space. **GM9.1b** Use positional descriptions to identify location of objects in space. **GM 9.1c** Use positional descriptions to identify location of objects on a coordinate system (e.g., "which object is above the 3x, 3y?"). **GM 9.2** Create and use simple maps. **GM 9.2a** Using a map, move from one place to another along a defined path (e.g., move from a student's desk to the teacher's desk). **GM 9.2b** Use navigation concepts, such as left, right, forward, backward, tactile, localizing and tracking to move along a path. **GM 9.2c** Create a simple map of familiar area (e.g., draw a map of the school to identify your evacuation route).	space. **GM 9.1b** Use positional descriptions to identify location of objects in space. **GM 9.1c** Use positional descriptions to identify location of objects on a coordinate system (e.g., "which object is above the3x, 3y?; e.g., identify coordinates when playing the game "Battleship"). **GM 9.2** Create and use simple maps. **GM 9.2a** Using a map, move from one place to another along a defined path (e.g., move from a student's desk to the teacher's desk). **GM 9.2b** Use navigation concepts, such as left, right, forward, backward, tactile, localizing and tracking to move along a path. **GM 9.2 c** Create a simple map of familiar area (e.g., draw a map of the school to identify your evacuation route). **GM 9.2d** Use a simple grid with x-axis label with letters and y-axis labeled with numbers to locate objects in regions. **GM 9.3** Use a coordinate reference system. **GM 9.3a** Use a simple 3 by 3 grid to locate specific points. **GM 9.3b** Use a simple grid 4 by 4 with x-axis label with letters and y-axis labeled with numbers to locate objects at intersections using positional language (e.g., move right 3 and up 2).

			GM 9.3c Use a simple grid with x-axis label with letters and y-axis labeled with numbers to describe path to an object or point using positional language (e.g., move right 3 and up 2). **GM 9.3d** Use coordinate labels to locate objects or pictures in simple situations (e.g., "which picture is located at B, 3?").
GM 10. Demonstrate conceptual understanding of spatial reasoning and visualization.			
K-2	**3-5**	**6-8**	**High School**
	GM 10.1 Create mental images of geometric shapes (e.g., single shapes – circle, oval, square and multiple shapes – square connected to triangle, etc.). **GM10.1a** Copy a shape or small collection of shapes from memory after seeing/feeling a model for several seconds (e.g., draw a triangle after a "quick image" of a triangle is shown. **GM10.1b** Draw a shape from memory and from verbal/written directions.	**GM 10.1** Create mental images of geometric shapes (e.g., single shapes – circle, oval, square and multiple shapes – square connected to triangle, etc.). **GM10.1a** Copy a shape or small collection of shapes from memory after seeing/feeling a model for several seconds (e.g., draw a triangle after a "quick image" of a triangle is shown. **GM10.1b** Draw a shape from memory and from verbal/written directions.	**GM 10.1** Create mental images of geometric shapes (e.g., single shapes – circle, oval, square and multiple shapes – square connected to triangle, etc.). **GM10.1a** Copy a shape or small collection of shapes from memory after seeing/feeling model for several seconds (e.g., draw a triangle after a "quick image" of a triangle is shown. **GM10.1b** Draw a shape from memory and from verbal/written directions. **GM10.1c** Build models of rectangular prisms from two dimensional (nets) or three dimensional representations.

Standard: Functions and Algebra (FA)

FA 1. Identify and extend to specific cases for a variety of patterns.

K-2	3-5	6-8	High School
FA1.1 Recognize a simple repeating (e.g., A, B, A, B, A, B) pattern with concrete materials (e.g., blue-red, blue-red, blue-red in cubes). **FA 1.2** Create a simple repeating pattern with concrete materials/representation.	**FA 1.1** Recognize a simple repeating (e.g., A, B, C) pattern with concrete materials (e.g., counting off 1-2-3, 1-2-3, 1-2-3 in Physical Education Class). **FA 1.2** Create a simple repeating pattern with concrete materials/representation. **FA 1.3** Extend a simple repeating pattern to the next one (e.g. A, B, A, B, A…).	**FA 1.1** Recognize a simple repeating (A, A, B) pattern with concrete materials (e.g., pencil, pencil, pen, pencil, pencil, pen, pencil, pencil, pen in art class). **FA 1.2** Create a simple repeating pattern with concrete materials/representation. **FA 1.3** Extend a simple repeating pattern to the next one (e.g. A, B, A, B, A…). **FA 1.4** Recognize a growing pattern (numeric) (e.g., 1, 1-2, 1-2-3, 1-2-3-4, 1-2-3-4-5). **FA 1.5** Create a simple growing pattern with concrete or semi-concrete representation (e.g., create a growing pattern on a hundreds' chart). **FA 1.6** No AAGSE at this grade span. **FA 1.7** Identify the core unit of a simple repeating pattern (e.g., x, o, x, o, x, the xo is the core unit of this pattern).	**FA 1.1** Recognize a simple repeating (A, B,A, B) pattern with concrete materials (e.g., pencil, pencil, pen, pencil, pencil, pen, pencil, pencil, pen in art class). **FA 1.2** Create a simple repeating pattern with concrete materials/representation. **FA 1.3** Extend a simple repeating pattern to the next one (e.g. A, B, A, B, A…). **FA 1.4** Recognize a growing pattern (numeric) (e.g., 1, 1-2, 1-2-3, 1-2-3-4, 1-2-3-4-5). **FA 1.5** Create a simple growing pattern with concrete or semi-concrete representation (e.g., create a growing pattern on a hundreds' chart). **FA 1.6** Extend a simple growing pattern to the next one **FA 1.7** Identify the core unit of a simple repeating pattern (e.g., x, o, x, o, x, the xo is the core unit of this pattern). **FA1.8** Compare two patterns with the same forms (e.g., "blue, blue, red, blue, blue, red" is the same as "clap, clap, step, clap, clap, step" because both are AABAAB form).

FA 2. Demonstrate conceptual understanding of linear relationships as a constant rate of change.

K-2	3-5	6-8	High School
		FA 2.1 Identify and/or describe a constant rate of change between successive elements in a pattern in a variety of situations (e.g., when skip counting by two, student identifies the rate of change as being 2).	**FA 2.1** Identify and/or describe a constant rate of change between successive elements in a pattern in a variety of situations (e.g., when looking at a graph, student identifies the rate of change as being constant).

FA 3.Demonstrate conceptual understanding of algebraic expressions.			
K-2	**3-5**	**6-8**	**High School**
	FA 3.1 Represent mathematical situations by using a box, letter, symbol involving any one of the four operations. **FA 3.1a** Recognize that a box, letter or other symbol represents an unknown quantity. **FA 3.1b** Use numbers, letters, symbols, pictures and/or words to represent a mathematical situation involving addition and subtraction (e.g., A+3, Δ – 5).	**FA 3.1** Represent mathematical situations by using a box, letter, symbol involving any one of the four operations. **FA 3.1a** Recognize that a box, letter or other symbol represents an unknown quantity. **FA 3.1b** Use numbers, letters, symbols, pictures and/or words to represent a mathematical situation involving addition and subtraction (e.g., A+3, Δ – 5). **FA 3.1c** Use numbers, letters, symbols, pictures and/or words to represent a mathematical situation involving multiplication and division (e.g., YX3, Δ ÷4).	**FA 3.1** Represent mathematical situations by using a box, letter, symbol involving any one of the four operations. **FA 3.1a** Recognize that a box, letter or other symbol represents an unknown quantity. **FA 3.1b** Use numbers, letters, symbols, pictures and/or words to represent a mathematical situation involving addition and subtraction (e.g., A+3, Δ – 5). **FA 3.1c** Use numbers, letters, symbols, pictures and/or words to represent a mathematical situation involving multiplication and division (e.g., YX3, Δ ÷4). **FA 3.2** Evaluate simple linear algebraic expressions for addition and subtraction (e.g., what is the value of Δ+2, if Δ=2?).
FA 4. Demonstrate conceptual understanding of equality.			
K-2	**3-5**	**6-8**	**High School**
		FA 4.1 Show equivalent representations with two expressions (e.g., 1+3=2+2) or an equation (e.g., 4+6=10).	**FA 4.1** Show equivalent representations with two expressions (e.g., 1+3=2+2) or an equation (e.g., 4+6=10). **FA 4.2** Find the value that will make an open sentence true (e.g., $2+\square=7$).