

Deer Valley Unified School District Mathematics Curriculum



First Grade

Incorporating the 2010 Arizona State Mathematics Standards

2011-2012

DRAFT

Mathematics Curriculum

The Intent and Design of the Common Core State Standards

Toward greater focus and coherence

Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics. Mathematical process goals should be integrated in these content areas.

—Mathematics Learning in Early Childhood, National Research Council, 2009

There are many ways to organize curricula. The challenge, now rarely met, is to avoid those that distort mathematics and turn off students.

— Steen, 2007

Assessing the coherence of a set of standards is more difficult than assessing their focus. William Schmidt and Richard Houang (2002) have said that content standards and curricula are coherent if they are:

articulated over time as a sequence of topics and performances that are logical and reflect, where appropriate, the sequential or hierarchical nature of the disciplinary content from which the subject matter derives. That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, but also the key ideas that determine how knowledge is organized and generated within that discipline. This implies that to be coherent, a set of content standards must evolve from particulars (e.g., the meaning and operations of whole numbers, including simple math facts and routine computational procedures associated with whole numbers and fractions) to deeper structures inherent in the discipline. These deeper structures then serve as a means for connecting the particulars (such as an understanding of the rational number system and its properties). (emphasis added)

These Standards endeavor to follow such a design, not only by stressing conceptual understanding of key ideas, but also by continually returning to organizing principles such as place value or the properties of operations to structure those ideas.

In addition, the “sequence of topics and performances” that is outlined in a body of mathematics standards must also respect what is known about how students learn. As Confrey (2007) points out, developing “sequenced obstacles and challenges for students...absent the insights about meaning that derive from careful study of learning, would be unfortunate and unwise.” In recognition of this, the development of these Standards began with research-based learning progressions detailing what is known today about how students’ mathematical knowledge, skill, and understanding develop over time.

How to read the grade level standards

Standards define what students should understand and be able to do.

Clusters are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.

Domains are larger groups of related standards. Standards from different domains may sometimes be closely related.

Number and Operations in Base Ten

3.NBT

Domain

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

Standards

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Cluster

These Standards are not intended to be new names for old ways of doing business. They are a call to take the next step. It is time for states to work together to build on lessons learned from two decades of standards based reforms. It is time to recognize that standards are not just promises to our children, but promises we intend to keep.

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<p>Operations and Algebraic Thinking (OA)</p> <ul style="list-style-type: none"> • Represent and solve problems involving addition and subtraction. • Understand and apply properties of operations and the relationship between addition and subtraction. • Add and subtract within 20. • Work with addition and subtraction equations. <p>Number and Operations in Base Ten (NBT)</p> <ul style="list-style-type: none"> • Extend the counting sequence. • Understand place value. • Use place value understanding and properties of operations to add and subtract. <p>Measurement and Data (MD)</p> <ul style="list-style-type: none"> • Measure lengths indirectly and by iterating length units. • Tell and write time. • Represent and interpret data. <p>Geometry (G)</p> <ul style="list-style-type: none"> • Reason with shapes and their attributes. 	<p>Mathematical Practices (MP)</p> <ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
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In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

(2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement. (Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.)

(4) Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

enVision Topic 1 and 2: Numbers to 12 & Comparing and Ordering Numbers			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Extend the counting sequence.	NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	enVision Topics: 1-1 to 1-6. Also found in enVision lessons 10-1, 10-3, 11-1 to 11-6, 12-2 Investigations Unit 8: S1.3 A , S4A.5
2	Understand place value.	NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	enVision Topics: 1-3. Also found in enVision lessons 10-1,10-3, 11-1 to 11-6, 12-2 Investigations Unit 8: S4A.2 to S4A.5
		NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $<$, and $=$.	enVision Topics: 2-1 Also found in enVision lessons 12-3 to 12-8 Investigations Unit 8 S4A.1
		Enduring Understanding	Essential Questions
		Counting tells how many are in a set.	How can you find how many are in a set?
		Numbers from 6-10 can be thought of as 5 and some more.	How can numbers from 6-10 be represented as 5 and some more?
		The numbers 11 and 12 can be thought of as 10 and some more.	How can the numbers 11 and 12 be represented as set of 10 and 0, 1, or 2 more?
		The number of objects in some patterned arrangements can be recognized without counting.	How can the number of objects arranged in a pattern be named without counting?
		Two different numbers can be related using "less than" or "greater than."	How can the terms "greater than" and "less than" express the relationship between two different numbers?

Topic 1 and 2: Numbers to 12 & Comparing and Ordering Numbers STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
number words, set, greater than, less than, number pattern, counters, five frame, ten frame, more, fewer	Count to tell how many objects in a set	Identify and write numerals	Sets of numbers
	Understand structure of number sets	Create sets with counters	Written numerals
	Explain or model "greater than" and "less than"	Add 1 more, 1 less, 2 more, 2 less	Number pattern matched with numeral
	Construct models of sets.	Recognize sets in number patterns	Completed five frames and ten frames
Rubric			
Developing	Proficient		Advancing
Needs concrete manipulatives to count; Needs number cards as a model to write the number; Writes numbers with reversals.	Recognizes dot pattern, number sets and can add one more, one less to the pattern; understand cardinal use of numbers; understands that counting results in a number that says how many things in the set are being counted; compares greater numbers or fewer numbers to a given set.		Can name a missing part given one part and the whole; can extend a dot pattern; fluently add or remove counters on a ten frame and make comparisons
Assessment			
Developing	Proficient		Advancing
Given a ten-frame and counters, student can model with counters on ten-frame to ten.	Given a ten-frame and counters, student can model with counters on ten-frame to twelve.		Given a ten-frame and counters, student can model with counters on ten-frame beyond twelve.
Counts dots in a dot pattern to identify the number.	Given a ten frame showing 12, student can verbalize that 12 is ten and two more.		Can answer the question verbally without using the ten-frame and counters: How can you use a ten-frame and counters to show 12?
Given a number less than 10, can identify the bigger/smaller number with support from a model.	Student verbalizes that one more than 9 is ten, one less than 9 is eight.		Given a dot pattern showing numbers 1-12 the student can use a strategy to identify the number without counting.
	Given a number 0-12, student verbalizes the relationship between them. (eg. 10 is less than 12)		Given a number 0-12, student verbalizes the relationship between them. (eg. 10 is less than 12 and can also say 12 is greater than 10)
	Given a dot pattern showing the number six the student can use a strategy to identify the number without counting.		

Topic 3: Understanding Addition			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Represent and solve problems involving addition and subtraction.	OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	enVision Topics: 3-1 to 3-5. Also found in enVision lessons 4-1 to 4-8, 6-6, 7-1 to 7-5, 16-1 to 16-6, 17-5, CC-1 to CC-2; Supplement problems to extend the topic to 20 Investigations Unit 6: S1.8A, S1.8B Website: http://illuminations.nctm.org/activitydetail.aspx?id=75
1		OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) (Students need not use formal terms for these properties.)	enVision Topics: 3-6. Also found in enVision lessons 6-1, 16-7, CC-8 Investigations Unit 6: S2.6A
1	Work with addition and subtraction equations.	OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.	enVision Topics: 3-4. Supplement problems to extend the topic to 20, Also found in enVision lessons 4-4, 6-1, CC-1, CC-3 Investigations Unit 3: S1.10A; Unit 6: S2.6A
		OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.	enVision Topics: 3-1 to 3-7. Supplement problems to extend the topic to 20, Also found in enVision Also found in enVision lessons 4-1 to 4-8, lesson CC-1
		Enduring Understanding	Essential Questions
		There are multiple interpretations of addition and subtraction of numbers, and the operations are related to each other.	How can real objects and physical actions be used to model mathematical ideas?
		Numbers can be broken into parts of the whole in different ways.	Does changing the order of the addends change the sum?
		Parts of a whole is one interpretation of addition. Number sentences can be used to show parts of a whole.	How can you use objects and drawings to show parts of a whole?
		Some problems can be solved by using objects to act out the actions in the problem.	How can you draw a picture of the story you acted out?
			How can addition number sentences be used to show the parts and the whole?

Topic 3: Understanding Addition STUDENT LEARNING

Topic 3: Understanding Addition STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
in all, inside, outside, part, whole, double, add, plus (+), sum, equals (=), addition sentences, join, order, addend	Model stories about adding to, taking from, putting together, taking apart, and comparing and then write a corresponding addition sentence to 20.	Write addition number sentences to find the whole, given two parts for numbers 0-20.	Completed number sentences on paper and/or white board.
	Explore making parts of numbers 0-20 in different ways and record the parts in a part-part model.	Recognize different ways to make numbers 0-20 and model the parts of a number using counters, cubes, etc.	Number patterns (with counters, cubes, etc.)
	Recognize parts of a number as a strategy for solving addition problems.	Add in any order. Count on from the largest number to add.	Oral adding
Rubric			
Developing		Proficient	Advancing
Needs hands on strategies modeled to make connections between what they hear or read and the meaning of the words.		Recalls the correct mathematical terms related to addition. Learns to represent addition involving language development (both verbal and symbolic).	Recalls the correct mathematical terms related to addition. Learns to represent addition involving language development (both verbal and symbolic).
Use of teacher/peer modeling, number cards, counters, fingers to show understanding of numbers.		Can tell or model more than one way to make a number to 20.	Can tell or model more than one way to make a numbers larger than 20. Can model a number as the sum of 3 numbers. Might use math webs for this.
		Writes addition sentences to find the whole, given two parts. Writes addition sentences to solve stories about adding to, taking from, putting together, taking apart, and comparing.	Can use picture books to write an addition sentence about it and then use that sentence to write own problem. May show proficiency using data in pictures to create and solve their own word problems.
Assessment			
Developing		Proficient	Advancing
Given a story problem with numbers 0-20, model the story and write a number sentence from the story.		Given a story problem with numbers 0-20, model the story and write a number sentence from the story.	Given a story problem with numbers greater than 20, model the story and write a number sentence from the story.
Given a number 0-20, model the number with a part-part-whole model, counters, and number sentences in more than one way.		Given a number 0-20, model the number with a part-part-whole model, counters, and number sentences in more than one way.	Given a number greater than 20, model the number with a part-part-whole model, counters, and number sentences in more than one way.

Topic 4: Understanding Subtraction

Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Represent and solve problems involving addition and subtraction.	<p>OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p>	<p>enVision Topics: 4-1 to 4-8. Supplement problems to extend the topic to 20, Also found in enVision lessons 3-1 to 3-7, 6-6, 7-1 to 7-5, 16-1 to 16-6, 17-5, CC-1 to CC-2</p> <p>Investigations Unit 6: S1.8A, S1.8B</p> <p>Website: http://illuminations.nctm.org/activitydetail.aspx?id=75</p>
		<p>OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</p>	<p>enVision Topics: 4-1 to 4-7. Supplement problems to extend the topic to 20, Also found in enVision lessons 5-4, 7-2 to 7-4, CC-2</p> <p>Investigations Unit 6: S1.8A, S1.8B</p>
2	Add and subtract within 20.	<p>OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p>	<p>enVision Topics: 4-1 to 4-7. Supplement problems to extend the topic to 20, Also found in enVision lessons 6-1 to 6-5, 7-1 to 7-4, 16-1 to 16-3, 16-5 to 16-6, 17-1 to 17-4</p> <p>Investigations Unit 6: S1.8A, S1.8B</p>
1,2	Work with addition and subtraction equations.	<p>OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</p>	<p>enVision Topics: 4-4. Also found in enVision lessons 3-4, 6-1, 11-4, CC-1, CC-3</p> <p>Investigations Unit 6: S1.8A, S1.8B</p>
		<p>OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.</p>	<p>enVision Topics: 4-1 to 4-7. Supplement problems to extend the topic to 20, Also found in enVision lessons 3-4, 5-4, 6-2 to 6-5, 7-1 to 7-4, 16-3, 16-5 to 16-6, 17-2 to 17-4, CC-3</p> <p>Investigations Unit 6: S1.8A, S1.8B</p>
Enduring Understanding			Essential Questions
There are multiple interpretations of addition and subtraction of numbers, and the operations are related to each other.			How can you use objects, drawings and subtraction number sentences to show the parts and the whole?
Numbers can be broken into parts of the whole in different ways.			How can real objects and physical actions be used to model mathematical ideas?
Parts of a whole is one interpretation of subtraction. Number sentences can be used to show parts of a whole.			How are addition and subtraction related?
Some problems can be solved by using objects to act out the actions in the problem.			Can subtraction number sentences be written in any order? (is it commutative)

Topic 4: Understanding Subtraction STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
missing part, subtract, difference, equal sign (=), subtraction sentence, compare, minus sign (-)	Apply correct terminology.	Subtract by finding the missing part for numbers 0-20.	Written number sentences and the drawing or model.
	Solve problems by solving the missing part.	Write and solve subtraction number sentences 0-20.	Group activities showing subtraction knowledge
	Find a missing part of a number 0-20 when one part is known.	Tell and act out stories about separating to find how many are left and how two groups are different.	
	Write and solve subtraction number sentences 0-20.		
Rubric			
Developing	Proficient		Advancing
Difficulty relating separating when working with subtraction.	Finds missing parts of numbers 0-20 when one part is known.		Can use mathematical vocabulary to develop own subtraction stories, problems and solutions.
Needs manipulatives to reinforce the concepts of subtraction.	Will model, write and solve subtraction number sentences for number 0-20.		Will model, write and solve subtraction number sentences for numbers larger than 20.
Use of teacher/peer modeling, number cards, counters, fingers to show understanding of numbers.	Can model, tell and act out stories about separating to find how many are left for numbers 0-20.		Can model, tell and act out stories about separating to find how many are left for numbers larger than 20.
	Can model, tell and act out comparing stories to find how two groups are different for numbers 0-20.		Can model, tell and act out comparing stories to find how two groups are different for numbers larger than 20.
	Can write and model related addition and subtraction facts for numbers 0-20.		Can write and model related addition and subtraction facts for numbers larger than 20.
Assessment			
Developing	Proficient		Advancing
Given a story problem with numbers 0-20, model the story and write a number sentence from the story.	Given a story problem with numbers 0-20, model the story and write a number sentence from the story.		Given a story problem with numbers greater than 20, model the story and write a number sentence from the story.
Given a number 0-20, model the number with a part-part-whole model, counters, and number sentences in more than one way.	Given a number 0-20, model the number with a part-part-whole model, counters, and number sentences in more than one way.		Given a number greater than 20, model the number with a part-part-whole model, counters, and number sentences in more than one way.

Topic 5: Five and Ten Relationships			
Qtr	Cluster	2010 Standard	Correlation (Resources)
2	Understand and apply properties of operations and the relationship between addition and subtraction.	OA.4 Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.	enVision Topics: 5-1 to 5-5, Also found in enVision lessons 3-4, 4-1 to 4-3, 4-5 to 4-7, 6-2 to 6-5, 7-2 to 7-4, 16-3, 16-5 to 16-6, 17-2 to 17-4, CC-3 Website: http://illuminations.nctm.org/activitydetail.aspx?id=75
	Add and subtract within 20.	OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	enVision Topics: 5-1 to 5-5, Also found in enVision lessons 4-1 to 4-7, 6-1 to 6-5, 7-1 to 7-4, 16-1 to 16-3, 16-5 to 16-6, 17-1 to 17-4 Investigations Unit 6: S1.8A, S1.8B
	Work with addition and subtraction equations.	OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.	enVision Topics: 5-3, 5-4. Also found in enVision lessons 3-4, 4-1 to 4-3, 4-5 to 4-7, 6-2 to 6-5, 7-2 to 7-4, 16-3, 16-5 to 16-6, 17-2 to 17-4, CC-3
Enduring Understanding		Essential Questions	
Numbers to 10 can be represented on a ten-frame using 5 and 10 as benchmarks.		How can you represent numbers to 10 on a ten-frame?	
The number 10 can be broken into parts of the whole in different ways.		How can you recognize numbers on a ten-frame?	
A missing part of a whole can be found when the whole and the other part are known.		How can the number 10 be represented as two parts?	
		How can a known part of 10 be used to find the missing part?	

Topic 5: Five and Ten Relationships STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
more, part, missing part, in all, whole, ten-frame, equal	Understand the concept of ten. Understand that five is half of ten.	Use counters and a ten-frame to model numbers up to 10.	Completed ten-frame using counters or completed ten-frame with counters illustrated on paper.
	The number ten can be broken into parts of the whole in different ways.	Represent numbers on a ten-frame, noting the relationship of those numbers to 5 and 10.	Verbally state the number represented on a ten-frame in terms of the five and ten relationship.
	Addition and subtraction are related.	Show 10 as two parts in multiple ways, including as a 0 and a 10.	Completed part-part whole work mat.
	Numbers or equations can be represented in multiple ways.	Find the missing part of a whole when the whole and the other part are known.	Completed part-part whole mat with the missing part identified.
Rubric			
Developing		Proficient	Advancing
Can represent a number on a ten-frame using a model.		Can identify the number without counting when shown a completed ten-frame.	Can easily identify numbers on a ten-frame and can illustrate the number quantity in multiple ways.
Can complete the missing part on a part-part whole mat using manipulatives to represent numerals.		Can identify the missing part when shown a part-part whole mat.	Can extend the number representation to larger numbers and can show the most efficient ways to show numbers greater than ten.
Writes numbers with reversals.		Can identify the two parts needed to complete a part-part whole mat when the whole is given.	Can easily identify numbers on a ten-frame based on the empty spaces on the frame.
Assessment			
Developing	Proficient		Advancing
Model numbers 0-10 on a ten-frame. Tell and write the numbers 0-10 when shown a completed ten-frame.	Model numbers 0-10 on a ten-frame given a number. Tell and write the numbers 0-10 when shown a completed ten-frame.		Model numbers 0-10 on a ten-frame given a number. Tell and write the numbers 0-10 when shown a completed ten-frame.
Use manipulatives to complete the missing part of the part-part-whole work mat for numbers 0-10.	Use manipulatives to complete the missing part of the part-part-whole work mat for numbers 0-10.		Use manipulatives to complete the missing part of the part-part-whole work mat for numbers larger than 10.
	Write the number represented on the ten-frame or part-part-whole work mat.		Write the number represented on the ten-frame or part-part-whole work mat.

Topic 6: Addition Facts to 12			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Represent and solve problems involving addition and subtraction.	OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	enVision Topics: 6-6. Supplement problems to extend the topic to 20, Also found in enVision lessons 3-1 to 3-5, 3-7, 4-1 to 4-8, 7-1 to 7-5, 16-1 to 16-6, 17-5, CC-1, CC-2 Investigations Unit 6: S1.8A, S1.8B
2	Represent and solve problems involving addition and subtraction.	OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) (Students need not use formal terms for these properties.)	enVision Topics: 6-1. Also found in enVision lessons 7-1 Investigations Unit 6: S2.6A
1	Add and subtract within 20. Add and subtract within 20.	OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	enVision Topics: 6-1. Also found in enVision lessons 3-4, 4-1 to 4-3, 4-5 to 4-7, 6-2 to 6-5, 7-2 to 7-4, 16-3, 16-5 to 16-6, 17-2 to 17-4, CC-3 Investigations Unit 6: S1.8A, S1.8B
2	Add and subtract within 20.	OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	enVision Topics: 6.1-6.5. Supplement problems to extend the topic to 20, Also found in enVision lessons 4-1 to 4-7, 7-1 to 7-4, 16-1 to 6-3, 16-5 to 16-6, 17-1 to 17-4 Investigations Unit 1: S2.5A; Unit 2: S3.1-3.3; Unit 6: S1.8A, S1.8B, S2.6A
2	Work with addition and subtraction equations.	OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$. OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.	enVision Topics: 6-1. Also found in enVision lessons 3-4, 4-4, 11-4, CC-1, CC-3 Investigations Unit 3: S1.10A; Unit 6: S2.6A enVision Topics: 6-2 to 6-5. Supplement problems to extend the topic to 20, Also found in enVision lessons 3-4, 4-1 to 4-3, 4-5 to 4-7, 5-4, 7-2 to 7-4, 16-3, 16-5 to 16-6, 17-2 to 17-4, CC-3
Enduring Understanding			Essential Questions
There are many strategies that aid in addition fluency including the number relationships of 0, 1-more-than, and 2-more-than; doubles and near doubles, and making a ten.			What are helpful strategies for addition fluency? What problems would you use the make a ten strategy for? What problems would you use the doubles and near doubles strategy for? What problems would you use the 0 more, 1 more, and 2 more strategy for?
Number relationships play an important role in fact fluency.			

Topic 6: Addition Facts to 12 STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
join, in all, part, whole, addition, addend, sum, addition sentence, equal to, plus, double, near double, 1 more, 10 more, doubles plus 1, doubles plus 2	Apply strategies effectively for fluently adding single digit numbers.	Match problems to the appropriate strategies and use those strategies to add.	Show the strategy used for the problem (eg. Write the doubles fact to help solve the related near doubles fact.)
	Add single digit numbers fluently.	Break down facts with sums of 6 through 10 using the strategy 5 plus some more.	Completed ten-frame using counters to represent the addition fact. Verbally state the fact using the five more strategy.
	Use addition strategies to solve problems.		
Rubric			
Developing	Proficient		Advancing
Needs manipulatives to add 0, 1 and 2.	Can mentally add plus 0, 1 and 2, and can easily demonstrate on a ten-frame how to add on with 0, 1, 2		Can verbally solve addition story problems.
Needs support of a ten-frame to add on.	Can add on from the larger number.		Can use doubles facts to mentally solve doubles plus 2.
Can draw sets with a model that has the same number of objects and write the addition sentence to match the set.	Can draw two sets showing doubles and doubles plus one and write the addition sentences for both sets.		Can apply doubles fact strategies to develop the concept of equivalent expressions using more than 2 addends.
	Can fluently make ten for any pair of single digit numbers. (0+10; 1+9; 2+8, etc.)		Can mentally decompose and recompose addends to maintain a constant sum.
Assessment			
Developing	Proficient		Advancing
Add two single digit numbers including problems like 8 +0, 7 +2, 3+3,5+4, 9 + 3, 3 + 9.	Add two single digit numbers including problems like 8 +0, 7 +2, 3+3, 5+4, 9 + 3, 3 + 9.		Add two single digit numbers including problems like 8 +0, 7 +2,3+3, 5+4, 9 + 3, 3 + 9, 6+9, 5+8
Write, model, or tell the strategy used to add.	Write, model, or tell the strategy used to add.		Write, model, or tell the strategy used to add.

Topic 7: Subtraction Facts to 12			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Represent and solve problems involving addition and subtraction.	OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	enVision Topics: 7-1 to 7-5. Also found in enVision lessons 3-1 to 3-5, 3-7, 4-1 to 4-8, 16.1-16-6, 17-5, CC-1 to CC-2 Investigations Unit 6: S1.8A, S1.8B
3		OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.	enVision Topics: 7-1 to 7-5. Also found in enVision lessons 4-1 to 4-8, 11-1 to 11.7 Investigations Unit 6: S1.8A, S1.8B
1	Add and subtract within 20.	OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	enVision Topics: 7-1. Also found in enVision lessons 6-1 Investigations Unit 6: S1.8A, S1.8B
2		OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	enVision Topics: 7-1 to 7-5. Also found in enVision lessons 4-1 to 4-7, 6-1 to 6-5, 16-1 to 16-3, 16-5 to 16-6, 17-1 to 17-4 Investigations Unit 6: S1.8A, S1.8B
3	Work with addition and subtraction equations.	OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.	enVision Topics: 7-1 to 7-5. Also found in enVision lessons 3-4, 4-1 to 4-7, 5-4, 6-2 to 6-5, 16-3, 16-5 to 16-6, 17-2 to 17-4, CC-3 Investigations Unit 6: S1.8A, S1.8B
Enduring Understanding			Essential Questions
An addition strategy can help with subtraction.			How can you use a model and an addition strategy to solve a subtraction problem?
The number relationships of 0-less-than, 1-less-than, and 2-less-than are the basis for subtraction facts with a 0, 1, or 2.			How can subtraction number sentences be used to show the parts and the whole?
Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to subtract; every subtraction problem has a related addition problem. (Fact Families)			What do you do when you subtract?
Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.			What are helpful strategies for subtraction fluency?

Topic 7: Subtraction Facts to 12 STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
0 less than, 1 less than, 2 less than, think addition, doubles, near doubles, number line	Apply strategies effectively for fluently subtracting single digit numbers.	Use counters, people and other items as a visual aid in subtraction with 0, 1 and 2.	Successfully completed activity using counters, people and other items. Showed the strategy used for the problem (eg. Write the doubles fact used to help solve problem.)
	Subtract single digit numbers fluently.	Verbally explains why the addition strategy will help solve subtraction facts.	Verbally explained strategies used to solve subtraction problems.
	Use addition strategies to subtraction solve problems.	Match problems to the appropriate strategies and use those strategies to add.	Show the strategy used for the problem (eg. Write the doubles fact to help solve the related near doubles fact.)
			Completed ten-frame using counters to represent the addition fact. Verbally state the fact using the five more strategy.
Rubric			
Developing		Proficient	Advancing
Needs manipulatives to add 0, 1 and 2.		Uses a think-addition strategy for subtraction of single digit numbers.	Can verbally solve subtraction story problems.
Needs support of a ten-frame to add on.		Write a subtraction sentence to solve a problem, and draw a picture or model the problem.	Can use doubles facts to mentally solve doubles minus 2.
Can draw sets with a model that has the same number of objects and write the addition sentence to match the set.		Model subtraction on a number line, with a ten-frame, and a part-part-whole mat.	
Assessment			
Developing		Proficient	Advancing
Subtract two single digit numbers including problems like 8–0, 7 –2, 3–3, 5–4, 9 –3, 12 – 5,		Subtract two single digit numbers including problems like 8–0, 7 –2, 3–3, 5–4, 9 –3, 12 – 5,	Subtract two single digit numbers including problems like 8–0, 7 –2, 3–3, 5–4, 9 –3, 12 – 5, 18– 7, 16– 12
Write, model, or tell the strategy used to subtract.		Write, model, or tell the strategy used to subtract.	Write, model, or tell the strategy used to subtract.

Topic 8: Geometry			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Reason with shapes and their attributes.	G.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	enVision Topics: 8-1 to 8-2, 8-9 to 8-11 Investigations Unit 9: S2.3A
		G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as “right rectangular prism.”)	enVision Topics: 8-3 to 8-4. Also found in enVision lessons CC-4 to CC-5 Investigations Unit 9: S2.3A, S3A.1 to 3A.4
		Enduring Understanding	Essential Questions
		Many everyday objects are close approximations of standard plane shapes.	How are many everyday objects are close approximations of standard plane shapes?
		Plane shapes have many properties that make them different from one another.	How can identifying the properties of plane shapes help you sort the shapes?
		Plane shapes can be combined to make new plane shapes.	How can plane shapes be combined to make new plane shapes?
		Plane shapes can be broken apart into other shapes.	How can breaking apart larger shapes make new smaller shapes?
		Many everyday objects closely approximate standard geometric solids.	What are some everyday objects that are close approximations of geometric solids?
		Many solid figures are composed of flat surfaces and vertices.	How does the number of flat surfaces and corners help you describe solid figures?
		Attributes can be used to sort solid figures.	How can attributes be used to sort solid figures?

Geometry STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
triangle, closed, rectangle, circle, square, plane shape, solid shape, side, vertices, points, cylinder, cube, sphere, trapezoid, cone, halves, fourths, quarters, equal, whole	Development of geometric concepts and spatial sense	Draw, build, make, and put together shapes.	Shapes sorted by attributes.
	Identify and compare plane shapes and solid figures.	Sort shapes based on attributes using a thinking map.	Drawings of shapes.
	Sort and classify plane shapes and solid figures.	Combine shapes to make new shapes.	Model of shapes constructed from smaller shapes.
	Explain similarities and differences based on attributes.	Explain the similarities and differences between shapes using geometric attributes.	Student created Thinking Map “Double Bubble” of similarities and differences of a shape.
Rubric			
Developing		Proficient	Advancing
Can tell some attributes that define shapes, including distinguishing between plane and solid shapes.		Can tell the attributes that define a shape and explain non-distinguishing attributes of shapes. Identify difference between plane shape and solid shape.	Can tell the attributes that define a shape and explain non-distinguishing attributes of shapes. Explain the difference between plane shape and solid shape.
Drawings of shapes may be incomplete or only include one of the attributes.		Shape is drawn including all indicated attributes and is complete.	Shape is drawn including all indicated attributes and is complete.
Can sort shapes in one way using an attribute and can explain the sort using appropriate attribute vocabulary.		Can sort the same set of shapes more than one way and can explain each sort using appropriate attribute vocabulary.	Can sort the same set of shapes multiple ways and can explain each sort using appropriate attribute vocabulary.
Uses model to combine shapes to make a new shape.		Identify difference between plane shape and solid shape.	Explain the difference between plane shape and solid shape.
Can combine two shapes to form a new plane shape using manipulative shapes provided (tangrams, geometric blocks, etc.)		Can combine two plane shapes to form a new plane shape and can combine two solid shapes to form a new solid shape. Chooses their manipulative to demonstrate.	Can combine two plane shapes to form a new plane shape and can combine two solid shapes to form a new solid shape. Displays confidence in choosing manipulatives.
Assessment			
Developing		Proficient	Advancing
Given a picture of a triangle: Explain two attributes that make this shape a triangle. What attributes can be changed and the shape will still remain a triangle?		Given a picture of a triangle: Explain two attributes that make this shape a triangle. What attributes can be changed and the shape will still remain a triangle?	Given a picture of a triangle: Explain two attributes that make this shape a triangle. What attributes can be changed and the shape will still remain a triangle?
Given a picture of an real life object, describe the object as a plane or solid shape and identify the attributes – plane, solid, number of sides, vertices, faces, closed, etc. Explain.		Given a picture of an real life object, describe the object as a plane or solid shape and identify the attributes – plane, solid, number of sides, vertices, faces, closed, etc. Explain.	Given a picture of an real life object, describe the object as a plane or solid shape and identify the attributes – plane, solid, number of sides, vertices, faces, closed, etc. Explain.
Draw a four-sided, closed shape where the sides are all straight. May need support,		Draw a four-sided, closed shape where the sides are all straight.	Draw a four-sided, closed shape where the sides are all straight.
Draw a plane shape with four vertices .May need explanation because of vocabulary (vertices).		Draw a plane shape with four vertices.	Draw a plane shape with four vertices.

Topic 10: Counting and Number Patterns to 100

Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Extend the counting sequence.	NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	enVision Topics: 10-3 to 10-5. Also found in enVision lessons 1.1-1.6, 11-1 to 11-4 Investigations Unit 8: S1.3A, S4A.5
3	Understand place value.	NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	enVision Topics: 10-1, 10-3. Also found in enVision lessons 1-3, 11-1 to 11-6, 12-2 Investigations Unit 8: S4A.2 to S4A.5
		Enduring Understanding	Essential Questions
		Numerals are symbols used to represent objects and the relationship among them.	How can you use ten-frames to show numbers 11 to 20 as a group of 10 and some more?
		Digits in a number have different values depending on their placement in the number.	How can you express the relationship between two numbers that are 1 or 2 more than or fewer than each other?
		The decade numbers are built on groups of ten. The oral names are similar, but not the same as the number of tens counted.	How can you use groups of 10 to count?
		Counting and place-value patterns can be seen on a hundred chart.	What visual patterns and number patterns are made by skip counting on a hundred chart?
		Skip counting can be used to find the total number of objects in a collection of equal groups.	How can you use skip counting to find a total number of objects?
		Some problems can be solved by identifying elements that repeat in a predictable way.	How can finding a number pattern help you solve a problem?

Topic 10: Counting and Number Patterns to 100 STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
skip count, number pattern, order, digit, set	Organize sets of objects	Organize sets of objects into bundles of tens and some ones	Sets of numbers using 10 frames.
	1:1 correspondence or numbers	Count and show patterns using a hundred chart	Sets of numbers in groups of 10.
	Understanding use of digits 0-9	Skip count by 2s and 5s.	Completed skip counting on hundred chart.
	Understanding use of sets of 5 and 10.	Skip count by 5s and 10s.	
	Understand the quantity that each digit in a number represents.	students read a numeral and identify the quantity that each digit represents	Students write the quantity of each digit on numeral cards to represent the number.

Rubric		
Developing	Proficient	Advancing
Student counts forward to 120 with some support.	Student counts forward to 120 without error or assistance.	Student counts forward and backward to 120 without error. May go beyond 120.
Student counts a set of objects by organizing them into bundles of tens and some ones with assistance.	Student counts a set of objects by organizing them into bundles of tens and some ones without assistance.	Student counts a set of objects by organizing them into bundles of tens and some ones without assistance and provides clear explanation how the model relates to place value.
Student can skip count by 2's, 5's and 10's to 120 with assistance.	Student skip counts by 2's, 5's and 10's to 120 without assistance.	Student can quickly skip count by 2's, 5's and 10's beyond 120.
Student can create a model that represents the quantity of the digits of a number up to 120 with assistance.	Student can create a model that represents the quantity of the digits of a number up to 120 without assistance.	Student can create a model that represents the quantity of the digits of a number up to 120 without assistance and can provide a clear explanation of their thinking process.

Assessment		
Developing	Proficient	Advancing
Count forward to 120.	Count forward to 120.	Count forward and backward to 120 and beyond.
Count a set of objects by organizing them into bundles of tens and some ones with assistance.	Count a set of objects by organizing them into bundles of tens and some ones.	Count a set of objects by organizing them into bundles of tens and some ones without assistance and explain how the model relates to place value.
Skip count by 2's, 5's and 10's to 120.	Skip count by 2's, 5's and 10's to 120.	Skip count by 2's, 5's and 10's beyond 120.
Given a number up to 120, create a model that represents the quantity of the given number that relates to place value.	Given a number up to 120, create a model that represents the quantity of the given number that relates to place value.	Given a number up to 120, create a model that represents the quantity of the digits of the given number and explain your thinking process.

Topic 11: Tens and Ones			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Extend the counting sequence.	NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	enVision Topics: 11-1 to 11-6. Also found in enVision lessons 1-3, 10-1, 10-3, 12-2 Investigations Unit 8: S1.3A, S4A.5
3	Understand place value.	NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones)	enVision Topics: 10-1, 10-3. Also found in enVision lessons 1-3, 11-1 to 11-6, 12-2 Investigations Unit 8: S4A.2 to S4A.5
3	Work with addition and subtraction equations.	OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.	enVision Topics: 11-4. Also found in enVision lessons 3-4, 4-4, 6-1, CC-1, CC-3 Investigations Unit 3: S1.10A Unit 6: S2.6A
Enduring Understanding		Essential Questions	
Understanding place value leads to success in addition and subtraction.		How does understanding place value help you compare, add, and subtract numbers?	
2 digit numbers can be broken down to parts. (The 10's and 1's)		In the number 57, what does the 5 represent and what does the 7 represent?	
Knowing place value and counting can be used to compare and order numbers.		For any 2 digit number, how can you identify the greater number?	
The equal sign one of the most powerful signs in mathematics.		What does an equal sign represent?	

Topic 11: Tens and Ones STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
skip count, number pattern, order, digit, set, addition symbol, subtraction symbol, greater than, less than, equal to symbol, hundred chart	Count sets of objects	Count sets of objects	Written numeral of last number in set.
	1:1 correspondence of numbers	Count and show patterns using a hundred chart	Sets of numbers in groups of 10.
	Understanding place value	Skip count by 2s and 5s.	Completed skip counting on hundred chart.
	Significance of equal sign	Write an equation with equal sign.	A completed equation.
	Understand place values role in comparing numbers.	Given 2 numbers (2 digits), student can compare which is greater number.	Drawing of numbers, larger numbers on one side, smaller on the other side of the paper.
Rubric			
Developing	Proficient		Advancing
Student needs to start at zero or needs prompting in order to count to 120.	Student shows no hesitation in counting, from any number to 120.		Student shows no hesitation in counting, from any number to 120.
Student counts objects individually and can write numeric value for members of the set.	Student quickly organizes objects (bundles) to aid in the counting of members of a set. Can write 2 digit value for set.		Student bundles objects in groups of 10 or other bundles (2's, 3's) to determine the number of members of the set.
Student has errors in either the separation between 10's and 1's or in the "bundling."	Student correctly breaks down the number 74 into 7 bundles of 10 and 4 bundles of 1's.		Student correctly breaks down the number 74 into 7 bundles of 10 and 4 bundles of 1's. Attempt of 3 digit number is correct.
Symbols may be out of order or not placed correctly in relation to numbers. When questioned, can see error.	Symbols are in correct order and shows understanding of the placement of the symbols with numbers.		Symbols are in correct order and shows understanding of the placement of the symbols with numbers.
Assessment			
Developing	Proficient		Advancing
When given any number, student can continue counting to 120. May need prompting.	When given any number, student can continue counting to 120.		When given any number, student can continue counting to 120.
Student needs assistance to count a set of objects and write the numeric value for the number of members of the set. (2 digit value)	Student counts a set of objects and writes the numeric value for the number of members of the set. (2 digit value)		Student counts a set of objects and writes the numeric value for the number of members of the set. (2 digit value) Can explain their reasoning why their answer is correct.
Student can draw a picture of a number broken down into 10's and 1's. May need assistance.	Student can draw a picture of a number broken down into 10's and 1's.		Student can draw a picture of a number broken down into 10's and 1's. Can also do 3 digits numbers.
Student can design equations (using the equal sign) that are correct.	Student can design equations (using the equal sign) that are both true and false.		Student designs multiple equations, using an equal sign, with both 1 and 2 digit numbers.

Topic 12: Comparing and Ordering Numbers

Topic 12: Comparing and Ordering Numbers			
Qtr	Cluster	2010 Standard	Correlation (Resources)
3	Understand place value.	NBT.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.	<p>enVision Topics: 12-2. Also found in enVision lessons 1-3, 10-3, 11-1 to 11-6</p> <p>Investigations Unit 8: S4A.2 to S4A.5</p>
			<p>enVision Topics: 12-1, 12-3 to 12-8. Also found in enVision lessons 1-3, 11-1 to 11-6, 12-2</p> <p>Investigations Unit 8: S4A.1</p>
3	Use place value understanding and properties of operations to add and subtract.	NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	<p>enVision Topics: 12-1 to 12-2. Also found in enVision lessons 20-1 to 20-4, CC-10; foundational support found in enVision 10.3</p> <p>Investigations Unit 8: S4A.1 to S4A.3, S4A.5</p>
			<p>enVision Topics: 12-1. Also found in enVision lessons 20-5 to 20-6, foundational support found in enVision 10.3</p> <p>Investigations Unit 8: S4A.2 to S4A.5</p>
		Enduring Understanding	Essential Questions
		The phrases “1 more”, “1 less”, “10 more”, “10 less” expresses a relationship between two numbers.	How does understanding place value help you compare numbers?
		Place value can be used to compare and order numbers.	How can a hundred chart show the relationships of 1 more than, 1 less than, 10 more than, and 10 less than?
		Two digit numbers that do not end in 5 are closer to either the previous or to the next multiple of 10.	For any 2 two-digit number, how can you identify the greater number?
		The position words before, after, and between can be used to explain number relationships. The number before is always 1 less and the number after is always 1 more.	How do you estimate the location of two-digit numbers on a number line?
		Ordering 3 or more numbers is similar to comparing 2 numbers because each number must be compared to each of the other numbers.	How does the ones digit change in a number that comes before or after a given number? How do ones digits help you decide what number comes between two given numbers?
			How is ordering three numbers similar to comparing two numbers?

Topic 12: Comparing and Ordering Numbers STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
1 more, 1 less, 10 more, 10 less, equal to (=), closest ten	Compare and order numbers	Use symbols to indicate =, <, or >.	Written comparisons of numbers using symbols.
	Determine greater and less numbers	Find 1 more, 1 less, 10 more, 10 less using a hundred chart.	Identification of numbers on a hundred chart.
	Explain why a number is greater or less	Sequence 3 numbers	Numbers written in order
Rubric			
Developing		Proficient	Advancing
Students use models, pictures or a number lines to compare two numbers with assistance.		Students accurately use models, pictures or a number lines to compare two numbers.	Students accurately use a variety of models, pictures or a number lines to compare two or more numbers.
Students can compare two-digit numbers using the correct comparison symbols: < > = and appropriate language with assistance.		Students can compare two-digit numbers using the correct comparison symbols: < > = and appropriate language.	Students can compare two- and three-digit numbers using the correct comparison symbols: < > = and appropriate language.
Student can identify 10 more or 10 less than any given number up to 100 with some counting.		Student can identify 10 more or 10 less than any given number up to 100 without counting.	Student can quickly identify 10 more or 10 less than any given number above 100 without counting.
Student can explain in one way why a number is 10 greater than a given number and another number is 10 less than that same given number, with assistance.		Student can explain in one way why a number is 10 greater than a given number and another number is 10 less than that same given number.	Student can explain in multiple ways why a number is 10 greater than a given number and another number is 10 less than that same given number.
Student can identify missing numbers on a hundred chart with some counting.		Student can identify missing numbers on a hundred chart without counting.	Student can identify missing numbers on a hundred chart without counting and explain how the number patterns repeat.
Assessment			
Developing		Proficient	Advancing
Students use a model, pictures, number lines, to compare two numbers.		Students use a model, picture, or number lines, to compare two numbers.	Students use a model, pictures, number lines, to compare more than two numbers.
Students compare two-digit numbers using appropriate language and symbols.		Students compare two-digit numbers using appropriate language and symbols.	Students compare two-digit numbers using appropriate language and symbols.
Find 10 more and 10 less than any given number up to 100 without counting.		Find 10 more and 10 less than any given number up to 100 without counting.	Find 10 more and 10 less than any given number above 100 without counting.
Explain why 53 is greater than 43 and 33 is less than 43.		Explain why 53 is greater than 43 and 33 is less than 43.	Explain why 53 is greater than 43 and 33 is less than 43.
Identify missing numbers on a hundred chart.		Identify missing numbers on a hundred chart.	Identify missing numbers on a hundred chart.

Topic 14: Measurement			
Qtr	Cluster	2010 Standard	Correlation (Resources)
2	Measure lengths indirectly and by iterating length units.	<p>MD.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.</p>	<p>enVision Topics: 14-1. Also found in enVision lessons CC-6</p> <p>Investigations Unit 5: S1.5A</p>
		<p>MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</p>	<p>enVision Topics: 14-2 to 14-5. Also found in enVision lessons CC-7</p> <p>Investigations Unit 5: S1.5A</p>
Enduring Understanding		Essential Questions	
Objects can be compared and ordered by size (length).		How can you compare and then order concrete objects according to length?	
Measurement is a process of comparing a unit to the object being measured. The length of any object can be used as a measurement unit for length.		How can you measure length with nonstandard units?	
The length of the unit of measure affect the number of units needed to measure an object's length.		How can you determine the number of units needed to measure an object's length?	
Different units can be used to measure length.		How can you use different measurement units to determine length?	

Topic 14: Measurement STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
taller, longer, shorter, higher, longest, shortest, compare, length, order, equal, object, ruler, unit of measure, measure, order, size	Use appropriate tools strategically and attend to precision.	Build 3 towers and order them from shortest to tallest	Towers in order from shortest to tallest
	Understand comparison language and relative size when using comparative language.	Compare and order lengths of objects using correct comparison language.	Orally compare objects using correct comparison words.
	Make comparisons and connect relationships to numbers, expressions, measurement, and objects to other numbers and objects in different ways.	Estimate, measure, and compare lengths of objects by using a nonstandard unit.	Select a reasonable non-standard measurement tool to measure an object.
		Use different units to measure lengths.	
Rubric			
Developing	Proficient	Advancing	
Can order three objects with different lengths from longest to shortest or shortest to longest with a visual model.	Can correctly order three objects with different lengths from longest to shortest or shortest to longest.	Can apply estimation and measurement skills to real-life questions regarding length. Example: Which has more perimeter, a basketball court or a football field?	
Can compare three objects with verbal or visual cues.	Can correctly select the appropriate unit of measurement based on the relative size or length of the object	Can correctly find objects based on estimation that correctly uses unit of measurement.	
	Can correctly compare three objects using longest to shortest or shortest to longest	Can use correct measurement tools to determine perimeter.	
Assessment			
Developing	Proficient	Advancing	
Given three objects, order them from shortest to tallest.	Given three objects, order them from shortest to tallest.	Given three objects, order them from shortest to tallest.	
Compare the length of two objects using linking cubes and tell which one is longer/shorter.	Compare the length of two objects using linking cubes and tell which one is longer/shorter.	Compare the length of two objects using linking cubes and tell which one is longer/shorter.	
Given an object, measure it using linking cubes, paper clips, etc. Tell how long it is.	Given an object, measure it using linking cubes, paper clips, etc. Tell how long it is.	Given an object, measure it using linking cubes, paper clips, etc. Tell how long it is.	

Topic 15: Time			
Qtr	Cluster	2010 Standard	Correlation (Resources)
2	Tell and write time.	MD.3. Tell and write time in hours and half-hours using analog and digital clocks.	<u>enVision Topics:</u> 15-1 to 15-3. Also found in enVision lessons CC-7 <u>Investigations Unit ?:</u> S3A.1
Enduring Understanding		Essential Questions	
The hour hand tells the hour and the minute hand tells the number of minutes after the hour.		What is the purpose of the minute and hour hands?	
Time to the hour can be shown on an analog clock or on a digital clock and can be written in two ways: __ o'clock or __:00.		How can you identify and write time to the hour and half hour on a digital and analog clock?	
Topic 15: Time STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
Hour, minute, hour hand, minute hand, o'clock, half hour, half past	Recognize differences between analog and digital clock.	Match time with display on digital and analog clocks.	Written time that matches display on digital and analog clocks.
	Understand structure of analog and digital clock displays.	Write time to match display on digital and analog clocks.	Display clock (like Judy clock) that matches time.
	Identify time and write corresponding time on analog and digital clock.	Show time on analog and digital clock from a verbal or written prompt.	
Rubric			
Developing		Proficient	
Needs model to write or read time.		Matches time with both analog and digital clock displays.	
Needs model when answering questions about time.		Write a given time with both words and numbers.	
Needs hands-on model (like Judy clock) to show time.		Tells time and reads time with accuracy and consistency.	
Assessment			
Developing		Proficient	
Given an analog and digital clock with a time displayed, tell and write the time.		Given an analog and digital clock with a time displayed, tell and write the time.	
Given a verbal or written time prompt, display the time on an analog and digital clock.		Given a verbal or written time prompt, display the time on an analog and digital clock.	
Advancing		Advancing	
		Tells short stories about day's activities and relate it to time.	
		Can answer story problems involving elapsed time.	
		Tells time and reads time with accuracy and consistency.	

Topic 16: Addition Facts to 18			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Represent and solve problems involving addition and subtraction.	<p>OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p>	<p>enVision Topics: 16-1 to 16-6. Also found in enVision lessons 3-1 to 3-5, 3-7, 4-1 to 4-8, 6-6, 7-1 to 7-5, 17-5, CC-1 to CC-2</p> <p>Investigations Unit 6: S1.8A to S1.8B</p>
		<p>OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p>	<p>enVision Topics: 16-7. Also found in enVision lessons CC-8</p> <p>Investigations Unit 6: S1.8A to S1.8B</p>
		<p>OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) (Students need not use formal terms for these properties.)</p>	<p>enVision Topics: 16-7. Also found in enVision lessons 3-6, 6-1, CC-8</p> <p>Investigations Unit 6: S2.6A</p>
2	Add and subtract within 20.	<p>OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p>	<p>enVision Topics: 16-1 to 16-3, 16-5 to 16-6. Also found in enVision lessons 4-1 to 4-7, 6-1 to 6-5, 7-1 to 7-4, 17-1 to 17-4</p> <p>Investigations Unit 1: S2.5A; Unit 2: S3.1-3.3; Unit 6: S1.8A to S1.8B;</p>
3	Work with addition and subtraction equations	<p>OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.</p>	<p>enVision Topics: 16-3, 16-5 to 16-6. Also found in enVision lessons 3-4, 4-1 to 4-3, 4-5 to 4-7, 5-4, 6-2 to 6-5, 7-2 to 7-4, 17-2 to 17-4, CC-3</p>
Enduring Understanding		Essential Questions	
Doubles facts can be associated with memorable real-world situations.		How can you identify and show a doubles fact?	
Basic addition facts that are near doubles can be found using a related doubles fact.		How can you use a doubles fact to find the sum of a doubles plus 1 fact? Plus 2 fact?	
Sometimes the answer to one problem/question is needed to find the answer to another problem/question.		How can the answer to one problem be used as information needed to solve another problem?	
Addition facts involving 8 or 9 can be changed to an equivalent fact with 10.		How can you make 10 to add 9? To add 8?	
Three numbers can be grouped and added in any order.		How can you add three numbers?	

Topic 16: Addition Facts to 18 STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
join, in all, part, whole, addition, addend, sum, addition sentence, equal to, plus, double, near double, 1 more, 10 more, doubles plus 1, doubles plus 2	Apply strategies effectively for fluently adding numbers to 20.	Match problems to the appropriate strategies and use those strategies to add.	Appropriately matched problems and strategies with an explanation.
	Add single digit numbers fluently.	Use ten frames or manipulatives to show addition strategies and their related number sentences.	Completed ten frames
	Use addition strategies to solve problems.	Add three numbers by looking for ways to make 10, or use another addition strategy.	Written number sentences.
Rubric			
Developing		Proficient	Advancing
Applies strategies to addition problems and arrives at an answer quickly for most problems, but still may need models and support for higher sums.		Effectively and efficiently applies strategies to addition problems and arrives at an answer quickly.	Effectively, efficiently, and flexibly applies multiple strategies to the same addition problems.
Can explain some addition strategies and can use them to solve problems in a context, but may need support to understand the problem.		Can explain multiple addition strategies and can use them to solve problems in a context.	Can explain multiple addition strategies and can use them to solve problems in a context.
Assessment			
Developing		Proficient	Advancing
Add two numbers including problems like $8 + 7$, $7 + 5$, $3 + 9$, $12 + 4$, $11 + 6$, $3 + 5 + 9$.		Add two numbers including problems like $8 + 7$, $7 + 5$, $3 + 9$, $12 + 4$, $11 + 6$, $3 + 5 + 9$.	Add two numbers including problems like $8 + 7$, $7 + 5$, $3 + 9$, $12 + 4$, $11 + 6$, $3 + 5 + 9$.
Write, model, or tell the strategy used to add.		Write, model, or tell the strategy used to add.	Write, model, or tell the strategy used to add.
Given a story problem, solve the problem and explain the strategy used.		Given a story problem, solve the problem and explain the strategy used.	Given a story problem, solve the problem and explain the strategy used.

Topic 17: Subtraction Facts to 18			
Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Represent and solve problems involving addition and subtraction.	OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	enVision Topics: 17-5. Also found in enVision lessons 3-1 to 3-5, 3-7, 4-1 to 4-8, 6-6, 7-1 to 7-5, 16-1 to 16-6, CC-1 to CC-2 Investigations Unit 6: S1.8A to S1.8B
3		OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.	enVision Topics: 17-1 to 17-4. Also found in enVision lessons 4-1 to 4-7, 5-4, 7-2 to 7-4, CC-2 Investigations Unit 6: S1.8A to S1.8B
2	Add and subtract within 20.	OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).	enVision Topics: 17-1 to 17-4. Also found in enVision lessons 4-1 to 4-7, 6-1 to 6-5, 7-1 to 7-4, 16-1 to 16-3, 16-5 to 16-6 Investigations Unit 1: S2.5A; Unit 2: S3.1-S3.3; Unit 6: S1.8A to 1.8B, S2.6A;
3	Work with addition and subtraction equations	OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \square - 3$, $6 + 6 = \square$.	enVision Topics: 17-2 to 17-4. Also found in enVision lessons 3-4, 4-1 to 4-3, 4-5 to 4-7, 5-4, 6-2 to 6-5, 7-2 to 7-4, 16-3, 16-5 to 16-6
Enduring Understanding			Essential Questions
Addition and subtraction have an inverse relationship. The inverse relationship between addition and subtraction can be used to subtract; every subtraction problem has a related addition problem. (Fact Families)			What are related facts? How does the relationship between addition and subtraction create a fact family? How can you identify an addition fact that will help you solve a subtraction problem? How can you use addition to solve subtraction?
Information in a problem can often be shown using a picture or diagram and used to understand and solve the problem. Some problems can be solved by writing and completing a number sentence or equation.			How can subtraction number sentences be used to show the parts and the whole? How can you use a model and an addition strategy to solve a subtraction problem?
An addition strategy can help with subtraction.			What are helpful strategies for subtraction fluency?

Topic 17: Subtraction Facts to 18 STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
whole, part, sum, addition sentence, plus, equals, addition, addend, missing part, subtract, subtraction sentence, minus sign, equal sign, difference, related facts, fact family	Recognize related operations between addition and subtraction	Use a part-part-whole model to write related addition and subtraction problems with greater numbers.	Completed part-part-whole model and written addition and subtraction number sentences.
	Use addition problems to solve subtraction problems.	Write all the related addition and subtraction problems for a whole and two parts.	Written addition and related subtraction problems.
	Recognize that the part-part-whole mat shows related operations	Decide what addition problem will help to solve a subtraction problem.	Verbally state why the addition problem will help to solve the subtraction problem.
Rubric			
Developing		Proficient	Advancing
Applies strategies to subtraction problems and arrives at an answer quickly for most problems, but still may need models and support for higher differences.		Effectively and efficiently applies strategies to subtraction problems and arrives at an answer quickly.	Effectively, efficiently, and flexibly applies multiple strategies to the same subtraction problems.
Can write the addition fact but may need support in writing the related subtraction fact.		Can write the addition and related subtraction fact.	Can mentally manipulate fact families. When given an addition sentence can verbally state what two subtraction problems can be solved.
Can explain some subtraction strategies and can use them to solve problems in a context, but may need support to understand the problem.		Can explain multiple subtraction strategies and can use them to solve problems in a context.	Can explain multiple subtraction strategies using correct mathematical terms: addends, difference, part, whole, missing part, and can use strategies to solve problems in a context.
Assessment			
Developing		Proficient	Advancing
Subtract two numbers including problems like 18-7, 17 - 5, 13-9, 12-4, 11 - 6, 9 - 5.		Subtract two numbers including problems like 18-7, 17 - 5, 13-9, 12-4, 11 - 6, 9 - 5.	Subtract two numbers including problems like 18-7, 17 - 5, 13-9, 12-4, 11 - 6, 9 - 5.
Write, model, or tell the strategy used to subtract.		Write, model, or tell the strategy used to subtract.	Write, model, or tell the strategy used to subtract.
Given a story problem, solve the problem and explain the strategy used.		Given a story problem, solve the problem and explain the strategy used.	Given a story problem, solve the problem and explain the strategy used.

Topic 18: Data and Graphs					
Qtr	Cluster	2010 Standard	Correlation (Resources)		
4	Represent and interpret data.	MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	<p><u>enVision Topics:</u> 18-1 to 18-3, 18-5 to 18-8.</p> <p><u>Investigations Unit:</u> S3.4A</p>		
Enduring Understanding		Essential Questions			
Collect a set of data and organize/represent the data in a graph.		Which graph would display your data the best? (Bar, Tally Marks, or Picture Graph)			
Choose the type of graph to best represent your data.		Why did you choose “this” type of graph?			
The arrangement of the data and the choice of graph, allows the viewer to compare data.		What can you “compare” from your graph?			
Graphs are ways of organizing and displaying information in order to describe data and draw conclusions. Data is always gathered to answer a question. How the data is organized or sorted depends on the question being asked.		What questions can you answer by looking at your graph?			
Topic 18: Data and Graphs STUDENT LEARNING					
Knowledge/Vocabulary	Cognitive Demand	Performance	Product		
graph, object, bar graph, picture graph, tally chart, tally mark, category, data, row, column	Gather data and construct a graph	Construct graphs and tally charts	Completed graph		
	Interpret data from a graph. Answer a question.	Teacher and other students ask questions about the completed graph	Completed graph, with multiple questions answered.		
	Compare data	Compare data	Written or oral interpretation of data		
	Count objects	Count objects to use information for graphs and tally charts	Written or oral interpretation of data		
Rubric					
Developing		Proficient		Advancing	
This student has difficulty understanding language associated with graphing and data, making graphs and other charts.		Can collect a set of data and organize it in a tally mark graph, picture graph, or bar graph.		Will explore and construct graphs based on a situation. Uses appropriate grade-level materials that will have graphs, data, and statistics in them.	
Has difficulty interpreting data in graphs.		Can answer questions and draw conclusions. Compares two objects from the graph.		Can create a different kind of graph to show same information. Answer questions, makes comparisons easily.	
Assessment					
Developing		Proficient		Advancing	
Student needs assistance to gather data and to choose an appropriate graph to represent the data.		Student can gather data, but needs help choosing an appropriate graph to represent their data.		Student can gather data and can independently choose an appropriate graph to represent their data.	
Can compare two objects from their graph.		Student can pose/answer questions from their graph. Can compare two objects from their graph.		Student can pose/answer questions from their graph. Can compare two objects from their graph.	

Topic 19: Fractional Parts

Qtr	Cluster	2010 Standard	Correlation (Resources)
1	Reason with shapes and their attributes.	G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	enVision Topics: 19-1 to 19-2, 19-5 to Also found in enVision lesson CC-9 Investigations Unit ??: S3A.1 to S3A.4

Enduring Understanding	Essential Questions
A region can be divided into equal-sized parts in different ways. Equal-sized parts of a region have the same area but not necessarily the same shape.	How can you divide a shape into equal parts?
	How can you describe equal parts of a whole?

Topic 19: Fractional Parts STUDENT LEARNING

Knowledge/Vocabulary	Cognitive Demand	Performance	Product
Halves, fourths, quarters, equal shares, whole, circle, square, rectangle, triangle, divide	Recognize whole, halves, and fourths.	Draw lines to divide shapes into equal parts and show it in different ways.	Shapes equally divided.
	Distinguish between equal parts and not equal parts.	Identify how many equal parts in a divided shape.	Correctly coloring regions to show fractional parts.
	Model division of shapes into equal parts.	Recognize and model dividing shapes into halves and fourths.	

Rubric		
Developing	Proficient	Advancing
Can divide rectangles and circles in halves and fourths in only one way. Parts may be equal or unequal depending on the number of parts asked for.	Divides a rectangle or circle into two or four equal parts and describes it as halves or fourths. Can explain that two-halves is a whole, and four-fourths is a whole.	Divides a rectangle or circle into two or four equal parts and describes it as halves or fourths. Can also use other descriptions such as two-fourths, three-fourths, etc. Verbalize elements such as size, position, and direction as they describe the parts.
Can identify the fractional part of a rectangle or circle shown with pattern blocks, pizza models, etc.	Can identify the fractional part of a rectangle or circle shown with pattern blocks, pizza models, etc.	Can identify the fractional part of a rectangle or circle shown with pattern blocks, pizza models, etc.

Assessment		
Developing	Proficient	Advancing
Given a rectangle divided into equal parts, student will identify the shaded part as half or a fourth.	Given a rectangle divided into equal parts, student will identify the shaded part as half, one-fourth, two-fourths, three-fourths.	Given a rectangle divided into equal parts, student will identify the shaded part as half, one-fourth, two-fourths, three-fourths.
Student will divide a rectangle in halves and fourths at least two different ways.	Student will divide a rectangle into halves and fourths at least two different ways and tell what is the fractional part.	Student will divide a rectangle into halves and fourths at least two different ways and tell what is the fractional part.

Topic 20: Add/Subtract with 10s/1s			
Qtr	Cluster	2010 Standard	Correlation (Resources)
3	Use place value understanding and properties of operations to add and subtract.	<p>NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p>	<p>enVision Topics: 20-1 to 20-4 Also found in enVision lesson 12-1 to 12-2, CC-10, foundational support found in enVision 10.3</p> <p>Investigations Unit 8: S4A.1 to S4A.3, 4A.5</p>
		<p>NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.</p>	<p>enVision Topics: 20-5 to 20-6 Also found in enVision lesson 12-1, foundational support found in enVision 10.3</p> <p>Investigations Unit 8: S4A.1 to S4A.3, 4A.5</p>
4		<p>NBT.6. Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p>	<p>enVision Topics: 20-1 to 20-7 Also found in enVision lesson 12-1, CC-11, CC-12, foundational support found in enVision 10.3</p> <p>Investigations Unit 8: S4A.1 to S4A.3, 4A.5</p>
		Enduring Understanding	Essential Questions
		Sometimes 1 ten needs to be renamed as 10 ones before subtracting.	How can you use a hundred chart to subtract tens from two-digit numbers?
		The counting pattern in our number system is the same for ones as for tens.(eg. 1,2,3...10, 20, 30...12, 22, 32...)	How does knowing the counting pattern help you add and subtract?
		When subtracting tens from a two-digit number, only the tens digit changes.	How do two-digit numbers change when multiples of ten are subtracted from them?
		Addition and subtraction can be done mentally.	

Topic 20: Add/Subtract to 10s & 1s STUDENT LEARNING

Topic 20: Add/Subtract to 10s & 1s STUDENT LEARNING			
Knowledge/Vocabulary	Cognitive Demand	Performance	Product
regroup, hundred chart	Add and subtract two-digit numbers with one-digit numbers and relate the strategy used to a written model.	Telling the strategies used to add and subtract with larger numbers using models. (number line, hundred number chart, several ten-frames, base ten materials)	The model and the explanation
	Add and subtract multiples of ten to two digits numbers 10-99 and explain the strategy used.	Telling the strategies used to add and subtract multiples of 10 with larger numbers using models. (number line, hundred number chart, several ten-frames, base ten materials)	The model and the explanation
	Recognize when regrouping is needed to subtract.		
Rubric			
Developing		Proficient	
Students have a strategy, but it may be a simple strategy like counting on or skip counting rather than making a 10 or recognizing that the ones can be regrouped to make the next full ten-frame.		Students have more than one strategy, like making a 10, using a hundred number chart, or recognizing that the ones can be regrouped to make the next full ten-frame, and can explain and model the strategy.	
Can add ones and tens with support from a model.		Can add ones and tens using more than one strategy and can explain their thinking.	
Uses tens models to find sums and differences of multiples of 10 and up to 100.		Can fluently add multiples of 10 up to 100. (eg. $20 + 40$, $60 + 30$, $80 - 50$, $90 - 20$)	
		May apply their understanding of addition to solve two-digit addition problems with 3 addends without regrouping.	
Assessment			
Developing		Proficient	
Add two-digit and one-digit numbers. Explain (eg. $45 + 6$, $36 + 3$)		Add two-digit and one-digit numbers and record the number sentence in horizontal form. Explain. (eg. $45 + 6$, $36 + 3$)	
Add and subtract multiples of ten with a two-digit number. Explain. (eg. $34 - 20$, $46 + 50$)		Add and subtract multiples of ten with a two-digit number. Explain. (eg. $34 - 20$, $46 + 50$)	
Add and subtract multiples of 10. Explain. (eg. $20 + 40$, $60 + 30$, $80 - 50$, $90 - 20$)		Add and subtract multiples of 10. Explain. (eg. $20 + 40$, $60 + 30$, $80 - 50$, $90 - 20$)	
Developing		Proficient	
Add two-digit and one-digit numbers. Explain (eg. $45 + 6$, $36 + 3$)		Add two-digit and one-digit numbers and record the number sentence in horizontal form. Explain. (eg. $45 + 6$, $36 + 3$)	
Add and subtract multiples of ten with a two-digit number. Explain. (eg. $34 - 20$, $46 + 50$)		Add and subtract multiples of ten with a two-digit number. Explain. (eg. $34 - 20$, $46 + 50$)	
Add and subtract multiples of 10. Explain. (eg. $20 + 40$, $60 + 30$, $80 - 50$, $90 - 20$)		Add and subtract multiples of 10. Explain. (eg. $20 + 40$, $60 + 30$, $80 - 50$, $90 - 20$)	

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Introduce	<p><i>Represent and solve problems involving addition and subtraction.</i> 1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Table 1.)</p>	<p><i>Represent and solve problems involving addition and subtraction.</i> 1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</p>	<p><i>Understand and apply properties of operations and the relationship between addition and subtraction.</i> 1.OA.4. Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</p>	<p><i>Represent and interpret data.</i> 1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.</p>	Introduce
	<p><i>Add and subtract within 20.</i> 1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</p>	<p><i>Understand and apply properties of operations and the relationship between addition and subtraction.</i> 1.OA.3. Apply properties of operations as strategies to add and subtract. Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.) (Students need not use formal terms for these properties.)</p>	<p><i>Work with addition and subtraction equations.</i> 1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.</p>	<p><i>Use place value understanding and properties of operations to add and subtract.</i> 1.NBT.6. Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p>	

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Introduce	<p><i>Extend the counting sequence.</i> 1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</p>	<p><i>Add and subtract within 20.</i> 1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).</p>	<p><i>Work with addition and subtraction equations.</i> 1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations: $8 + ? = 11$, $5 = \bullet - 3$, $6 + 6 = \bullet$.</p>	<p><i>Reason with shapes and their attributes.</i> 1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.</p>	Introduce
	<p><i>Reason with shapes and their attributes.</i> 1.G.1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</p>	<p><i>Measure lengths indirectly and by iterating length units.</i> 1.MD.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.</p>	<p><i>Understand place value.</i> 1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</p>		

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Introduce	<p><i>Reason with shapes and their attributes.</i> 1.G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as “right rectangular prism.”)</p>	<p><i>Measure lengths indirectly and by iterating length units.</i> 1.MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</p>	<p><i>Understand place value.</i> 1.NBT.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.</p>		Introduce
		<p><i>Tell and write time.</i> 1.MD.3. Tell and write time in hours and half-hours using analog and digital clocks.</p>	<p><i>Use place value understanding and properties of operations to add and subtract.</i> 1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</p>		

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Introduce			<i>Use place value understanding and properties of operations to add and subtract.</i> 1.NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.		Introduce
	Indicates Mastery in 1st semester				
	Indicates Mastery in 2nd Semester				

Standards for Mathematical Practice

<i>Standards</i>		<i>Explanations and Examples</i>
1.MP.1. Make sense of problems and persevere in solving them.		In first grade, students realize that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Younger students may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, “Does this make sense?” They are willing to try other approaches.
1.MP.2. Reason abstractly and quantitatively.		Younger students recognize that a number represents a specific quantity. They connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities.
1.MP.3. Construct viable arguments and critique the reasoning of others.		First graders construct arguments using concrete referents, such as objects, pictures, drawings, and actions. They also practice their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” “Explain your thinking,” and “Why is that true?” They not only explain their own thinking, but listen to others’ explanations. They decide if the explanations make sense and ask questions.
1.MP.4. Model with mathematics.		In early grades, students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed.
1.MP.5. Use appropriate tools strategically.		In first grade, students begin to consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, first graders decide it might be best to use colored chips to model an addition problem.
1.MP.6. Attend to precision.		As young children begin to develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and when they explain their own reasoning.
1.MP.7. Look for and make use of structure.		First graders begin to discern a pattern or structure. For instance, if students recognize $12 + 3 = 15$, then they also know $3 + 12 = 15$. (<i>Commutative property of addition.</i>) To add $4 + 6 + 4$, the first two numbers can be added to make a ten, so $4 + 6 + 4 = 10 + 4 = 14$.
1.MP.8. Look for and express regularity in repeated reasoning.		In the early grades, students notice repetitive actions in counting and computation, etc. When children have multiple opportunities to add and subtract “ten” and multiples of “ten” they notice the pattern and gain a better understanding of place value. Students continually check their work by asking themselves, “Does this make sense?”

Table 1. Common addition and subtraction situations.⁶

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$
	Total Unknown	Addend Unknown	Both Addends Unknown ¹
Put Together / Take Apart²	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5, 5 - 3 = ?$	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$
	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare³	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? ("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5, 5 - 2 = ?$	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?, 3 + 2 = ?$	(Version with "more"): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?, ? + 3 = 5$