



# Transitional Colorado Assessment Program (TCAP) Assessment Framework Mathematics – Grade 3

The assessment frameworks specify the content that will be eligible for assessment in the 2012 and 2013 TCAP by aligning the assessment objectives from the Colorado Model Content Standards (old standards) with the Colorado Academic Standards (new standards). TCAP supports the transition to the Colorado Academic Standards (CAS) during the next two years as a gradual approach to statewide measuring of student achievement of the new standards.

Please remember that the TCAP frameworks, and thus TCAP, are not inclusive of **all** of the CAS. **Districts should, however, still transition to the full range of the new standards as the complete set of CAS will be considered eligible content for inclusion in the new 2014 assessment.**

The frameworks are organized as indicated in the table below:

<b>Standard</b>	Indicates the broad knowledge skills that all students should be acquiring in Colorado schools at grade level. Each standard is assessed every year.		
<b>Benchmark</b>	Tactical descriptions of the knowledge and skills students should acquire by each grade level assessed by the TCAP.		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
Specific knowledge and skills eligible for inclusion on TCAP for each grade level.	Provides the code(s) from the Colorado Academic Standards (CAS) that correspond(s) to the assessment objective.	Provides the text from the CAS which correspond(s) to the assessment objective.	Provides clarifying information.

The following may assist in understanding the revised frameworks:

- As the new standards are mastery based, any assessment objective that is aligned to a standard or a mathematical practice from the Colorado Academic Standards at the relevant grade level or below is eligible for assessment on the TCAP.
- A CAS may be aligned to multiple assessment objectives. To ensure a reasonable document length per grade, some instances of multiple CAS alignments have been omitted.



- Some assessment objectives, or parts of assessment objectives, do not explicitly align with the CAS but will still be assessed. Where this occurs, it is noted with language such as “this will continue to be assessed.” The concepts from these assessment objectives are also compiled in a table at the bottom of each framework for easy reference. The purpose of continuing to assess non-CAS aligned objectives is to ensure the reliability and comparability of the TCAP to prior year’s assessments.
- Assessment objectives and parts of assessment objectives that will no longer be assessed have been struck through and are included in the revised frameworks for purposes of comparison to the prior frameworks only.
- A key to the CAS Alignment Code can be by following this link:  
[http://www.cde.state.co.us/cdeassess/UAS/AdoptedAcademicStandards/CAS\\_Reference\\_system.pdf](http://www.cde.state.co.us/cdeassess/UAS/AdoptedAcademicStandards/CAS_Reference_system.pdf)

The revised frameworks directly build off of the work done on the original Colorado Student Assessment Program (CSAP) frameworks and reflect a joint endeavor between the Office of Assessment, Research and Evaluation and the content specialists from the Office of Academic and Instructional Support.



<b>Standard 1</b>	Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 1</b>	Demonstrate meanings for real numbers, absolute value, and scientific notation using physical materials and technology in problem-solving situations.		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Identify whether a given number is odd or even.	MA10-GR.2-S.1-GLE.2-EO.d.i	Determine whether a group of objects (up to 20) has an odd or even number of members. (CCSS: 2.OA.3)	
b. Identify the fractional part of a drawing or a set (restricted to halves, thirds, fourths).	MA10-GR.3-S.1-GLE.2-EO.a	Develop understanding of fractions as numbers. (CCSS: 3.NF)	
c. Using concrete materials or pictures identify different combinations of coins up to \$0.99.	MA10-GR.2-S.4-GLE.2-EO.c.ii	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. (CCSS: 2.MD.8)	

<b>Standard 1</b>	Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 2</b>	Read and write whole numbers and know place-value concepts and numeration through their relationships to counting, ordering, and grouping.		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Read, write, and order numerals 0 - 9,999.	MA10-GR.2-S.1-GLE.1-EO.a.ii	Count within 1000. (CCSS: 2.NBT.2)	The CAS only require 3 <sup>rd</sup> grade students to work with numbers up to 1000. However, reading, writing and ordering of numerals 0 to 9,999 will continue to be assessed.
	MA10-GR.2-S.1-GLE.1-EO.a.iv	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (CCSS: 2.NBT.3)	
	MA10-GR.2-S.1-GLE.1-EO.a.v	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$ , $=$ , and $<$ symbols to record the results of comparisons. (CCSS: 2.NBT.4)	



<b>Standard 1</b>	Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 2</b>	Read and write whole numbers and know place-value concepts and numeration through their relationships to counting, ordering, and grouping.		
b. Read the number words for selected numbers from zero to nine thousand, nine hundred ninety-nine”.	MA10-GR.2-S.1-GLE.1-EO.a.iv	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (CCSS: 2.NBT.3)	Does not explicitly state number words and only refers to 1000.
c. Identify place value through ten-thousands (for example, in 86,243, ‘6’ is in the thousands place.	MA10-GR.2-S.1-GLE.1-EO.a.i	Represent the digits of a three-digit number as hundreds, tens, and ones. (CCSS: 2.NBT.1)	Only refers to hundreds not thousands and is not explicit about identification but it would be implied. The CAS only require 3 <sup>rd</sup> grade students to work with numbers up to 1000. However, reading, writing and ordering of numerals 0 to 9,999 will continue to be assessed.
d. Generate equivalent representations for the same number up to a 4-digit number (for example; 25=20+5 or 10+15 or 2 tens and 5 ones).	MA10-GR.2-S.1-GLE.1-EO.a.i	Represent the digits of a three-digit number as hundreds, tens, and ones. (CCSS: 2.NBT.1)	Only three digit not four digit.
	MA10-GR.2-S.1-GLE.1-EO.a.iv	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (CCSS: 2.NBT.3)	
e. Compare whole numbers as greater than, less than, or equal to one another using words or symbols.	MA10-GR.2-S.1-GLE.1-EO.a.v	Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. (CCSS: 2.NBT.4)	



<b>Standard 1</b>			
Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.			
<b>Benchmark 3</b>			
Use numbers to count, to measure, to label, and to indicate location.			
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Locate, label, or count forward from any even number by 2's and from any number by 10's and 100's up to 999.	MA10-GR.2-S.1-GLE.1-EO.a.iii	Skip-count by 5s, 10s, and 100s. (CCSS: 2.NBT.2)	If students are able to locate and label fractions at third grade there is an implied ability to do whole numbers.
	MA10-GR.3-S.1-GLE.2-EO.a.ii	Describe a fraction as a number on the number line; represent fractions on a number line diagram. (CCSS: 3.NF.2)	
	MA10-GR.2-S.1-GLE.2-EO.d.i	Determine whether a group of objects (up to 20) has an odd or even number of members by pairing objects or counting them by 2s. (CCSS: 2.OA.3)	
b. Locate and label $\frac{1}{2}$ s between whole numbers on the number line.	MA10-GR.3-S.1-GLE.2-EO.a.ii	Describe a fraction as a number on the number line; represent fractions on a number line diagram. (CCSS: 3.NF.2)	

<b>Standard 1</b>			
Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.			
<b>Benchmark 4</b>			
Develop, test, and explain conjectures about properties of whole numbers, and commonly-used fractions and decimals (for example, $\frac{1}{3}$ , $\frac{3}{4}$ , 0.5, 0.75).			
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Use the multiplication properties of zero and one with whole numbers.	MA10-GR.3-S.1-GLE.3-EO.b.i	Apply properties of operations as strategies to multiply and divide. (CCSS: 3.OA.5)	
b. Solve addition and subtraction problems using commutative and associative properties (for example, $2+3+6=6+3+2$ ; the words commutative and associative will not be used in test items).	MA10-GR.3-S.1-GLE.1-EO.a.ii	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. (CCSS: 3.NBT.2)	Commutative and associative properties are properties of operations.



<b>Standard 1</b>	Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 5</b>	Use number sense to estimate and justify the reasonableness of solutions to problems involving whole numbers, and commonly-used fractions and decimals (for example, $\frac{1}{3}$ , $\frac{3}{4}$ , 0.5, 0.75).		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Use estimation strategies to determine the reasonableness of solutions to problems.	MA10-GR.3-S.1-GLE.3-EO.d.iii	Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (CCSS: 3.OA.8)	



<b>Standard 2</b>	Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 1</b>	Reproduce, extend, create, and describe patterns and sequences using a variety of materials (for example, beans, toothpicks, pattern blocks, calculators, unifix cubes, colored tiles).		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Reproduce, extend, and create patterns, using pictures or geometric shapes	MA10-GR.3-S.1-GLE.3-EO.d.iv	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. (CCSS: 3.OA.9)	
b. Use a pattern to find missing elements (for example, multiples of 2, 3, 4, 5, 10).	MA10-GR.3-S.1-GLE.3-EO.d.iv	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. (CCSS: 3.OA.9)	

<b>Standard 2</b>	Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 2</b>	Describe patterns and other relationships using tables, graphs, and open sentences.		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
No assessment objectives assessed at this level on the TCAP.			

<b>Standard 2</b>	Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.		
<b>Benchmark 3</b>	Recognize when a pattern exists and use that information to solve a problem.		
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Identify a rule using addition or subtraction patterns and solve a new problem using the rule.	MA10-GR.3-S.1-GLE.3-EO.d.iv	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. (CCSS: 3.OA.9)	Does not refer to using pattern to solve new problem.
b. Given numbers in a table, extend the table.	MA10-GR.3-S.1-GLE.3-EO.d.iv	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. (CCSS: 3.OA.9)	



<b>Standard 2</b>		Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 4</b>		Observe and explain how a change in one quantity can produce a change in another (for example, the relationship between the number of bicycles and the number of wheels).	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. <del>Using whole numbers, determine how the change in one quantity affects the change in the other by addition or subtraction (for example, one bicycle has 2 wheels, 2 bicycles have 4 wheels, and 3 bicycles have 6 wheels. How many wheels do 4 bicycles have? The solution could be presented in chart or picture form).</del>			Not explicitly in the CAS at 3 <sup>rd</sup> grade or below.

<b>Standard 3</b>		Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 1</b>		Construct, read, and interpret displays of data including tables, charts, pictographs, and bar graphs	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Organize and display data using <del>tallies</del> , bar graphs, pictographs, <del>or tables</del> .	MA10-GR.3-S.3-GLE.1-EO.a.i	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. (CCSS: 3.MD.3)	Tallies and tables are not explicitly in the CAS at 3 <sup>rd</sup> grade or below.



<b>Standard 3</b>				Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.
<b>Benchmark 2</b>				Interpret data using the concepts of largest, smallest, most often, and middle.
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>		<b>Comment</b>
a. <del>Determine the mode from a given a set of numbers, the mode is the number that occurs most often.</del>				Not explicitly in the CAS at 3 <sup>rd</sup> grade or below.
b. Use various displays of data, interpret and draw conclusions.	MA10-GR.3-S.3-GLE.1-EO.a.i	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. (CCSS: 3.MD.3)		This is part of the mathematical practices, "Construct viable arguments and critique the reasoning of others."
	MA10-GR.3-S.3-GLE.1-EO.a.ii	Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. (CCSS: 3.MD.3)		

<b>Standard 3</b>				Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.
<b>Benchmark 3</b>				Generate, analyze, and make predictions based on data obtained from surveys and chance devices.
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>		<b>Comment</b>
a. Determine which outcomes are the most likely, least likely, or equally likely when using a chance device (for example, a spinner).				Not explicitly in the CAS at 3 <sup>rd</sup> grade or below. However, this assessment objective will continue to be assessed.



<b>Standard 3</b>		Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 4</b>		Solve problems using various strategies for making combinations (for example, determining the number of different outfits that can be made using two blouses and three skirts).	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a.—Given pictures, determine all the possible combinations of matching a set containing two elements with a set containing three elements.			Not explicitly in the CAS at 3 <sup>rd</sup> grade or below.



<b>Standard 4</b>			
Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.			
<b>Benchmark 1</b>			
Recognize shapes and their relationships (for example, symmetry, congruence) using a variety of materials (for example, pasta, boxes, pattern blocks).			
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Identify figures which are congruent.	MA10-GR.3-S.4-GLE.1-EO.a	Reason with shapes and their attributes. (CCSS: 3.G)	The CAS do not explicitly refer to congruence at 3 <sup>rd</sup> grade or below. However, identification of figures which are congruent will continue to be assessed.
b. Identify a line of symmetry for regular polygons and other familiar objects	MA10-GR.3-S.4-GLE.1-EO.a	Reason with shapes and their attributes. (CCSS: 3.G)	The CAS do not explicitly refer to symmetry. However, symmetry within this context will continue to be assessed.
c. Create a figure with at least one line of symmetry	MA10-GR.3-S.4-GLE.1-EO.a	Reason with shapes and their attributes. (CCSS: 3.G)	The CAS do not explicitly refer to symmetry. However, symmetry within this context will continue to be assessed.

<b>Standard 4</b>			
Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.			
<b>Benchmark 2</b>			
Identify, describe, draw, compare, classify, and build physical models of geometric figures.			
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Identify the characteristics of two-dimensional figures (for example, number of sides or vertices, contains a right angle, contains parallel sides).	MA10-GR.3-S.4-GLE.1-EO.a	Reason with shapes and their attributes. (CCSS: 3.G)	
	MA10-GR.3-S.4-GLE.1-EO.a.i	Explain that shapes in different categories may share attributes and that the shared attributes can define a larger category. (CCSS: 3.G.1)	
<del>b. Identify points, lines, and line segments.</del>			Not explicitly in the CAS at 3 <sup>rd</sup> grade or below.



<b>Standard 4</b>				Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.
<b>Benchmark 2</b>				Identify, describe, draw, compare, classify, and build physical models of geometric figures.
c. Identify three dimensional figures (for example, cubes, spheres, cylinders, cones and pyramids).	MA10-GR.K-S.4-GLE.1-EO.a	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). (CCSS: K.G)		Pyramids are not explicitly in the CAS at 3 <sup>rd</sup> grade or below.
<del>d. Identify right angles.</del>				Not explicitly in the CAS at 3 <sup>rd</sup> grade or below.
e. Create and identify the results of combining or subdividing given geometric shapes (for example, pattern blocks, tangrams).	MA10-GR.1-S.4-GLE.1-EO.c	Compose two dimensional shapes or three-dimensional shapes to create a composite shape, and compose new shapes from the composite shape. (CCSS: 1.G.2)		
	MA10-GR.3-S.4-GLE.1-EO.a.ii	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. (CCSS: 3.G.2)		

<b>Standard 4</b>				Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.
<b>Benchmark 3</b>				Relate geometric ideas to measurement and number sense.
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>	
a. Find the perimeter of a polygon.	MA10-GR.3-S.4-GLE.2-EO.c.i	Find the perimeter given the side lengths. (CCSS: 3.MD.8)		

<b>Standard 4</b>				Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.
<b>Benchmark 4</b>				Solve problems using geometric relationships and spatial reasoning (for example, using rectangular coordinates to locate objects, constructing models of three-dimensional objects).
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>	
<i>No objectives assessed at this level on the TCAP.</i>				



<b>Standard 5</b>		Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.	
<b>Benchmark 1</b>		Know, use, describe and estimate measure of length, perimeter, capacity, weight, time, and temperature.	
a. Use an analog and digital clock; tell time to the nearest 5 minutes.	MA10-GR.3-S.4-GLE.3-EO.a.i	Tell and write time to the nearest minute. (CCSS: 3.MD.1)	
b. Read and interpret pictorial representations of measurements of length, weight, temperature, and capacity.	MA10-GR.3-S.3-GLE.1-EO.a.iii	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (CCSS: 3.MD.4)	
	MA10-GR.3-S.4-GLE.3-EO.a	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (CCSS: 3.MD)	
	MA10-GR.2-S.4-GLE.2-EO.a	Measure and estimate lengths in standard units. (CCSS: 2.MD)	
c. Choose the appropriate tool to measure familiar objects/situations containing length, weight, temperature or time.	MA10-GR.3-S.4-GLE.3-EO.a	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (CCSS: 3.MD)	Choosing an appropriate tool is part of the mathematical practice, "Use appropriate tools strategically."
	MA10-GR.3-S.4-GLE.3-EO.a.iv	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (CCSS: 3.MD.2)	

<b>Standard 5</b>		Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.	
<b>Benchmark 2</b>		Compare and order objects according to measurable attributes (for example, longest to shortest, lightest to heaviest).	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Compare objects according to the measurable attributes of length, capacity, weight, or temperature.	MA10-GR.2-S.4-GLE.2-EO.a.iv	Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. (CCSS: 2.MD.4)	The CAS do not explicitly refer to temperature at 3 <sup>rd</sup> grade or below. However, it will continue to be assessed within this assessment objective.
	MA10-GR.3-S.4-GLE.3-EO.a	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (CCSS: 3.MD)	



<b>Standard 5</b>				Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.
<b>Benchmark 3</b>				Demonstrate the process of measuring and explaining the concepts related to units of measurement.
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>		<b>Comment</b>
a. Measure the length of objects including the sides of rectangles and squares to the nearest inch and centimeter.	MA10-GR.3-S.4-GLE.2-EO.c	Solve real world and mathematical problems involving perimeters of polygons. (CCSS: 3.MD.8)		
	MA10-GR.3-S.3-GLE.1-EO.a.iii	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (CCSS: 3.MD.4)		

<b>Standard 5</b>				Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.
<b>Benchmark 4</b>				Use the approximate measures of familiar objects (for example, the width of your finger, the temperature of a room, the weight of a gallon of milk) to develop a sense of measurement.
a. Approximate the measurement of familiar objects using standards units (for example, a paper clip is about one inch).	MA10-GR.2-S.4-GLE.2-EO.a.iii	Estimate lengths using units of inches, feet, centimeters, and meters. (CCSS: 2.MD.3)		The CAS do not refer to estimate based on a comparison

<b>Standard 5</b>				Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.
<b>Benchmark 5</b>				Select and use appropriate standard and non-standard units of measurement in problem-solving situations.
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>		<b>Comment</b>
<i>No objectives assessed at this level on the TCAP.</i>				



<b>Standard 6</b>		Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 1</b>		Demonstrate conceptual meanings for the four basic arithmetic operations of addition, subtraction, multiplication, and division.	
a. Using pictures, diagrams, numbers or words, demonstrate addition and subtraction of whole numbers with 2-digit numbers.	MA10-GR.3-S.1-GLE.1-EO.a.ii	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. (CCSS: 3.NBT.2)	

<b>Standard 6</b>		Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 2</b>		Add and subtract commonly-used fractions and decimals using physical models (for example, $\frac{1}{3}$ , $\frac{3}{4}$ , 0.5, 0.75).	
<del>a. Using pictures, diagrams, numbers or words, demonstrate addition and subtraction of whole numbers with 2-digit numbers.</del>			Not explicitly in the CAS at 3 <sup>rd</sup> grade or below.
b. Using money notation, add and subtract commonly used decimals in which sums and differences should not exceed \$10.00.	MA10-GR.3-S.1-GLE.1-EO.a.ii	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. (CCSS: 3.NBT.2)	The CAS do not explicitly use money notation at 3 <sup>rd</sup> grade or below. However, addition and subtraction within the context of money will continue to be assessed.



<b>Standard 6</b>		Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 3</b>		Demonstrate fluency with basic addition, subtraction, multiplication, and division facts without the use of a calculator.	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Demonstrate understanding of basic multiplication facts of 1's, 2's, 3's, 5's, 10's.	MA10-GR.3-S.1-GLE.3-EO.c.ii	Recall from memory all products of two one-digit numbers. (CCSS: 3.OA.7)	
b. Demonstrate proficiency with basic addition and subtraction facts.	MA10-GR.2-S.1-GLE.2-EO.b	Fluently add and subtract within 20 using mental strategies. (CCSS: 2.OA.2)	
	MA10-GR.2-S.1-GLE.2-EO.c	Know from memory all sums of two one-digit numbers. (CCSS: 2.OA.2)	

<b>Standard 6</b>		Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 4</b>		Construct, use, and explain procedures to compute and estimate with whole numbers.	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Use estimation strategies with whole numbers prior to performing the operations of addition and subtraction (for example, front-end estimation, estimation by rounding, friendly numbers, flexible rounding, clustering).	MA10-GR.3-S.1-GLE.3-EO.d.iii	Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (CCSS: 3.OA.8)	



<b>Standard 6</b>		Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 4</b>		Construct, use, and explain procedures to compute and estimate with whole numbers.	
b. Demonstrate three basic operations of whole numbers (for example, addition and subtraction of three digits, and multiplication of multiples of ten by 1, 2, 3, 5).	MA10-GR.3-S.1-GLE.1-EO.a.ii	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. (CCSS: 3.NBT.2)	
	MA10-GR.3-S.1-GLE.1-EO.a.iii	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations. (CCSS: 3.NBT.3)	

<b>Standard 6</b>		Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems.	
<b>Benchmark 5</b>		Select and use appropriate methods for computing with whole numbers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods.	
<b>Assessment Objective</b>	<b>CAS Alignment Code</b>	<b>CAS Expectation Text</b>	<b>Comment</b>
a. Given a real world problem-solving situation, use addition, subtraction, or multiplication to solve the problem.	MA10-GR.3-S.1-GLE.3-EO.d.i	Solve two-step word problems using the four operations. (CCSS: 3.OA.8)	
b. Determine from real-world problems, whether an estimated or exact sum, difference, or product is acceptable.	MA10-GR.3-S.1-GLE.3-EO.d.iii	Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (CCSS: 3.OA.8)	



**Note: Some assessment objectives or parts of assessment objectives are not contained within the Colorado Academic Standards at or below this grade level but will continue to be assessed with the TCAP in 3<sup>rd</sup> grade. The concepts from these objectives are reflected in the table below.**

Grade 3 Mathematics	Relevant Assessment Objective(s)
Working with numbers beyond 1,000 (from 0 to 9,999)	1.2a; 1.2c
Probability	3.3a
Identifying congruent figures	4.1a
Symmetry	4.1b
Temperature	5.2a
Money notation	6.2b