

Grade 3 Benchmark Proficiencies

I. NUMBER SENSE

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STI.1	be able to count, read, write and compare numbers up to 10,000				
STI.2	know and use ordinal numbers through 29th				
STI.3	show objects grouped in odd or even numbers				
STI.4	count by 1's backward from any given number under 1000				
STI.5	count by 2's backward from any given number under 100				
STI.6	write a given number in expanded notation up to 10,000 (e.g., 2,306 = 2000 + 300 +6.)				
STI.7	count on by 10's starting with such numbers as 7, 13, 56, 137 up to 1,000				
STI.8	know the sequence of numbers up to 10,000. (ex. rank 5 randomly selected numbers from least to most)				
STI.9	count objects by grouping them in 2's, 5's, and 10's				
STI.10	use concrete models (ex. base-10 blocks) to show understanding of place value				
STI.11	find equivalent forms of a number under 10,000 using thousands, hundreds, tens, and ones.				
STI.12	identify the place value for each digit in numbers to 10,000				
STI.13	know that each thousands member must have four digits				
STI.14	round off numbers up to 10,000 to the nearest ten, hundred, and thousand				
STI.15	estimate prior to counting , the number of concrete objects or pictures by two's, by five's, by ten's, or by using ordinal numbers				
STI.16	know >, <, =, and be able to use them appropriately when comparing numbers or writing number sentences up to 10,000				
STI.17	construct number groups to 10,000 using concrete materials				
STI.18	construct and draw 4-digit numbers using thousands, hundreds, and tens and ones				
STI.19	understand the special properties of 0 and 1 in multiplication and division				
STI.20	translate real life multiplication and division situations into conventional mathematical symbols				
STI.21	show multiplication and division as a number sentence using the x (multiplication) and the / (division) symbol				
STI.22	explore the use of Roman numerals I through XII in real life				
STI.23	figure out and commit to memory all addition facts (sums to 20) and related subtraction facts, without concrete objects, orally and in writing				
STI.24	add strings of numbers mentally by finding groups of ten				

Grade 3 Benchmark Proficiencies

I. NUMBER SENSE (Continued)

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STI.25	count by 10's to 10,000 using mental math				
STI.26	use strategies for adding or subtracting numbers: regroup, trade, or exchange				
STI.27	add and subtract any two whole numbers between 0 and 10,000				
STI.28	explore situations for which an estimate is appropriate				
STI.29	know and use the family of facts to find missing addends or minuends				
STI.30	add up to four 1-digit numbers horizontally and vertically				
STI.31	know multiplication facts for the table of 2, 3, 4, 5, 6,7,8,9, and 10				
STI.32	use and understand multiplication and division as an inverse relationship to solve problems and check answers				
STI.33	multiply a number, up to four digit numbers, by one digit number				
STI.34	divide evenly a number, up to four digit numbers, by a one digit number e.g. $385 \div 5$				
STI.35	make a reasonable estimate for addition and subtraction statements				
STI.36	verify estimates by using the most appropriate method for computing, mental computation, paper and pencil, calculator				
STI.37	estimate amount by using front end digits, compatible numbers, multiples of ten				
STI.38	divide a circle, square, or rectangle into $1/2$, $1/3$, $1/4$, and $3/4$				
STI.39	shade parts of a whole and label as fractions with denominators of 2, 3, or 4				
STI.40	explore how parts of a set can be labeled as fractions with denominators of 2, 4, 8, 3, and 6				
STI.41	show fraction names for one				
STI.42	compare fractions using diagrams or manipulatives ($1/3$ of a pizza is less than $\underline{\quad}$ of a pizza; $\underline{\quad}$ of a pizza is the same as $2/4$ of a pizza)				
STI.43	discover that fraction parts are more or less than $1/2$				
STI.44	add and subtract simple fractions with like denominators.				
STI.45	know simple fractional equivalence e.g. $1/8 + 3/8 = 4/8 = 1/2$				
STI.46	using real life experiences, use $1/4$, $1/2$, and $3/4$ of quantities as benchmarks to estimate				
STI.47	express money values using appropriate decimal terms e.g. \$5.05 is five dollars and 5 cents				
STI.48	know, read and write money amounts up to \$100				
STI.49	assemble coins and bills to represent a given amount				
STI.50	handle and identify all coins, including half dollars				
STI.51	make change for purchases for less than \$5				

Grade 3 Benchmark Proficiencies

I. NUMBER SENSE (Continued)

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q	Q	Q	Q
		1	2	3	4
STI.52	estimate and solve money problems by rounding to the nearer dollar				
STI.53	play trading games to show equivalencies for pennies, nickels, dimes, and quarters				
STI.54	read and write ¢ and \$ with money amounts				
STI.55	determine the unit cost, given the total cost and number of units				
STI.56	solve money problems involving +, -, x, ÷ using decimals and whole numbers interchangeably e.g. two books at \$1.30 each and two pencils at .50¢ cost <u> ? </u> e.g. if paid with one dollar bill what is the change?				
STI.57	know and recognize fractional equivalence for money e.g. 25¢ is <u> </u> \$				
STI.58	estimate the value of a given collection of coins				
STI.59	estimate dollar amount by rounding to the nearer dollar				
STI.60	estimate the expected amount of change				

Grade 3 Benchmark Proficiencies

II. ALGEBRA and FUNCTIONS

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STII.1	select the most appropriate computation method: paper/pen, mental math, calculator, and give reason for method				
STII.2	select appropriate operational symbols to make an equation true e.g. $12 _ ? _ 4 = 3$				
STII.3	show quantity relationships using mathematical equations or inequalities				
STII.4	solve problems involving equations				
STII.5	solve problems involving numeric inequalities				
STII.6	compare two sets of objects to determine whether there are about the same number of items in each set when the objects are arranged randomly or in a familiar pattern				
STII.7	recognize and extend a linear pattern given by rules or diagrams				
STII.8	solve simple problems involving functional relationships (e.g. total cost of many items given unit cost)				
STII.9	name and use the associative properties of multiplication				
STII.10	understand and show unit conversions in number sentences (e.g. $_ ? \text{ ft} = _ ? \text{ yd} \times 3$)				

Grade 3 Benchmark Proficiencies

III. MEASUREMENT and GEOMETRY

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STIII.1	use the calendar to solve real life situations involving dates, weeks, months, and years				
STIII.2	determine the number of minutes between two given times, and record findings				
STIII.3	tell the appropriate time when events will occur, such as recess, lunch, bed time				
STIII.4	read and write time to the quarter hour on analog and digital time pieces				
STIII.5	draw the hands on a clock to show time to the _ hour				
STIII.6	explain the meaning of am and pm, and use the initials appropriately				
STIII.7	estimate and find elapsed time to include hours and minutes				
STIII.8	estimate reasonable amount of time needed to complete an activity to the nearest half hour				
STIII.9	properly place a ruler when measuring up and down to _ inch and to 1 centimeter				
STIII.10	accurately measure out a given amount of liquid using: cup, pint, quart, gallon, and liter				
STIII.11	read Fahrenheit and Celsius temperatures on a thermometer				
STIII.12	choose appropriate tools and units to estimate and measure length (centimeter, meter, or kilometer; inch, foot, or yard), weight (gram or kilogram; ounce, or pound), or liquid volume (ounce, cup, gallon, liter) for a familiar real life object				
STIII.13	choose the most reasonable length and weight for a familiar looking given item				
STIII.14	estimate and measure length using non-standard and standard units of meters, centimeter, yards, feet, inches				
STIII.15	estimate capacity in liters, cups, pints, quarters, and gallons				
STIII.16	estimate and measure weight using non-standard units and standard units of grams, kilograms, ounces, and pounds				
STIII.17	estimate distance and temperature, using non-standard and standard units for measurement, and measure to evaluate the reasonableness of the estimate				
STIII.18	explore using measurement abbreviations				
STIII.19	identify the attributes of right angles and find right angled objects in real life				
STIII.20	identify angles that are < or > than a right angle				
STIII.21	identify attributes of triangles (e.g. no equal sides for scalene triangle, a right angle for a right triangle)				

Grade 3 Benchmark Proficiencies

III. MEASUREMENT and GEOMETRY (Continued)

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STIII.22	identify, describe, and classify polygons up to 8 sides (e.g. hexagons, octagons)				
STIII.23	identify, describe, and classify everyday objects such as cube, cone, sphere, cylinder, rectangular prism and pyramid				
STIII.24	discover properties for geometric figures and relationships by measuring, coloring, folding, cutting, making models, and using tiles and geoboards				
STIII.25	identify attributes of quadrilaterals (e.g. parallel sides for the parallelogram, right angles for the rectangle, equal sides for the rhombus)				
STIII.26	count the faces, edges, and corners of a cubes, rectangular prisms and pyramids, and name each face as a two dimensional figure				
STIII.27	identify 3 dimensional objects found in real life situations (e.g. a farm silo, a house, etc)				
STIII.28	identify three dimensional objects that are needed to make complex objects				
STIII.29	find the perimeter of a polygon with integer sides using non-standard or standard units for measurement				
STIII.30	explore and estimate the area of a square or a triangle using non-standard or standard units for measurement, and record findings in square units				
STIII.31	explore and estimate the volume of a rectangular prism, using concrete materials, and record findings in cubic units				
STIII.32	find lines of symmetry in real life, and given a shape , and draw a line of symmetry				
STIII.33	explore congruency in triangles, squares, rectangles, and octagons				
STIII.34	identify, match, and create congruent figures using materials such as graph paper, pattern, and geoboards				
STIII.35	find and names points, lines, and line segments in real life situations				
STIII.36	explore parallel and intersecting lines in everyday life				
STIII.37	identify the attributes of right angles and find right angle objects in everyday life				
STIII.38	identify 2- and 3-dimensional figures that have the same shape and same size, or that have the same shape but a different size				
STIII.39	discover geometric patterns involving turns, slides, or flips				
STIII.40	given the coordinates, identify an object on a rectangular grid				
STIII.41	name the coordinates for a given object on a grid				
STIII.42	estimate the reasonable amount of time needed to complete an activity to the nearest half hour				

Grade 3 Benchmark Proficiencies

IV. STATISTICS, DATA ANALYSIS, and PROBABILITY

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q	Q	Q	Q
		1	2	3	4
STIV.1	collect and organize data and represent it in an organized way with a pictograph, a bar graph, or a line plot				
STIV.2	explore pictographs and bar graphs, and tally charts by making identifications, comparison, and predictions				
STIV.3	identify information on a labeled picture map				
STIV.4	take a simple survey, record findings, discuss outcomes, and draw conclusions				
STIV.5	use picture, bar, circle, graph, line plot, and tally marks to make predictions				
STIV.6	record and keep track of the possible outcomes for a simple event that is repeated many times (e.g. tossing a coin)				
STIV.7	identify events that are likely, unlikely, certain, or impossible				
STIV.8	conduct simple probability experiments and use results to predict future events				
STIV.9	find combinations and arrangements using a tree diagram (e.g. find all possible combinations between three pairs of shoes and two pairs of socks)				
STIV.10	explore the concept of chance and fairness by using spinners, coins tosses, game boards and real life situations				
STIV.11	conduct simple probability experiments and summarize results using a line plat, tally marks, and a picture, bar, or circle graph				
STIV.12	identify and extend missing elements of repeating patterns (e.g. find the missing piece to a puzzle; draw the missing piece to a pattern, continue the pattern)				
STIV.13	explore growing patterns (e.g. 121, 12321, 1234321, ..)				
STIV.14	identify and complete growing patterns on a 100 number chart				
STIV.15	discover and continue number patterns, involving one operation (e.g. adding 4,8, ,16 or subtracting 25,20,15, . 5				
STIV.16	work with input and output tables				

Grade 3 Benchmark Proficiencies

V. MATHEMATICAL REASONING

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
	reason, set up, and solve problems relating to the California Content Standards for mathematics, using the following skills and strategies				
STV.1	explore using the following components of the problem solving process: understanding the problem situation or question dealing with the data planning a solution solving the problem with accurate calculation analyzing and evaluating the solution in the context of the problem				
STV.2	explore using the following problem solving strategies:				
	retell the problem				
	use manipulatives to sort data and plan for a solution				
	make or complete a list, a graph or a tally chart to sort information				
	identify needed information and relationship to solve a problem				
	check for too little/too much; relevant/irrelevant information				
	draw a picture to clarify relationships and to illustrate the problem solving approach				
	interpret data found in representations, graphs, and diagrams				
	guess and check for solutions				
	look for a pattern to predict a solution				
	act the problem out or role play to find a solution				
	work backwards to find a solution				
	prioritize and acquire information				
STV.3	use daily experiences to apply problem solving skills				
STV.4	explore using a number a sentence				
STV.5	choose the correct operations to find a solution				
STV.6	estimate the reasonableness of an answer				
STV.7	test and explain the reasonableness of the answer using numbers, charts, symbols, tables, and diagrams				
STV.8	develop convincing written arguments, using appropriate mathematical notations and terms, for the correctness of the solution				
STV.9	explore solving multi-step problems taken from real life situations,				
STV.10	using the same method of deriving a solution to solve similar problems				
STV.11	use strategies and results from simple problems to solve complex problems				
STV.12	develop generalizations of results and apply them to other problems				
STV.13	give answers to a specified degree of accuracy e.g. to the nearest hundred				
STV.14	know when and why to use exact versus approximate answers.				
STV.15	work cooperatively in groups or with a partner to apply strategies in problem solving situations				

Grade 3 Benchmark Proficiencies

**VI. NCTM STANDARD
MATHEMATICAL CONNECTIONS**

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STVI.1	English listen for mathematical ideas and words in literature				
STVI.2	Social Studies: locate a city on a map using the coordinate plane or a map with a legend and a scale				
STVI.3	Science: explore weather patterns in regions studied				
STVI.4	Art and Music Observing or listening for, and working with patterns				
STVI.5	Technology: <u>Please note:</u> While the National Council of Teachers of Mathematics (NCTM) do include the technology benchmark proficiencies, the State of California Content Standards do not use a four function calculator to: find sums and differences under 100 find up to 4 addends whose sum equals a given number skip count by 3's, 4's, and 6's find the cost of selected items. (in \$ units) add or subtract a series of numbers using the equal key only once to play trading games. e.g., enter a 4-digit number on a calculator, challenge a partner to press keys to make the digit in the 10's place a zero to compute or verify estimates of solutions				
STVI.6	use a computer and drawing programs to: draw shapes, patterns, pictures explore drawing congruent 2-dimensional figures, using the copy and paste function of a computer drawing program explore copying and flipping a figure to create a design that has a line of symmetry				

Grade 3 Benchmark Proficiencies

**VII . NCTM STANDARD
MATHEMATICS AS COMMUNICATION**

By the end of the Grade 3, students will be able to...

	Degree of mastery: A= 75% or more of the students B=about half C=fewer than 25%	Q 1	Q 2	Q 3	Q 4
STVII.1	use correctly position words of north, south, east, and west and all previously learned math terms and expressions				
STVII.2	think and talk about math using verbs such as: analyze solve, decide, classify, predict, estimate, compare, plan, organize, collect, record, represent, interpret, investigate, construct, explore, etc				
STVII.3	understand oral and written directions for appropriate mathematical activities				
STVII.4	verbalize mathematical thinking and explain activities				
STVII.5	show ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams, and by building with a variety of concrete materials				
STVII.6	explain verbally and in writing strategies used in solving problems				
STVII.7	work cooperatively with a group or a partner				
STVII.8	set goals and plan to reach them				