CKP 6/06

KANSAS CURRICULUM STANDARDS FOR MATHEMATICS EDUCATION CORRELATED TO *MOVING WITH MATH®* EXTENSIONS *GRADE 4*

	Student Book	Skill Builders
STANDARD 1: NUMBER AND COMPUTATION		
The student uses numerical and computational concepts and procedures in a variety of situations.		
Benchmark 1: Number Sense		
The student demonstrates number sense for whole numbers, fractions (including mixed numbers), decimals, and money including the use of concrete objects in a variety of situations.		
Fourth Grade Knowledge Base Indicators		
The student....		
1. knows, explains, and uses equivalent representations for:		
a. whole numbers from 0 through 100,000;	2, 7	
b. fractions greater than or equal to zero (halves, fourths, thirds, eighths, tenths, twelfths, sixteenths, hundredths) including mixed numbers;	45-46	30-1, 31-1, 32-1
c. decimals greater than or equal to zero through hundredths lace and when used as monetary amounts, e.g., 7¢ = $.07 = 7/100 of a dollar or a hundreds grid with 7 sections colored.	24	
2. compares and orders:		
a. whole numbers from 0 through 100,000;	5-6	2-1
b. fractions grater than or equal to zero (halves, fourths, thirds, eighths, tenths, twelfths, sixteenths, hundredths) including mixed numbers with a special emphasis on concrete objects;	47	
c. decimals greater than or equal to zero through hundredths place and when used as monetary amounts.		
Fourth grade Application Indicators		
The student...		
1. solves real-world problems using equivalent representations and concrete objects to:		

		Student Book	Skill Builders
a.	compare and order whole numbers from 0 through 10,000, e.g., using base ten blocks represent the attendance at the circus over a three day stay; then represent the numbers using digits and compare and order in different ways;	5-6	2-1
b.	add and subtract whole numbers from 0 through10,000 and decimals when used as monetary amounts, e.g., use real money to show at least 2 ways to represent $142.78, then subtract the cost of a pair of tennis shoes;	24	10-1, 11-1, 12-1, 15-1, 15-2, 16-1, 17-1, 18-1, 47-1, 47-2
c.	multiply a one-digit whole number by a two-digit whole number, e.g., use base ten blocks to represent 24 x 5 to find the total number of hours in 5 days, or use repeated addition: 24 + 24 + 24 + 24 + 24 to solve, or use the algorithm.	28-29	21-1, 21-2
2.	determines whether or not solutions to real-world problems that involve the following are reasonable:		
a.	whole numbers from 0 through10,000, e.g., a student says that there are 1,000 students in grade 4 at her school, is this reasonable?		
b.	fractions greater than or equal to zero (halves, fourths, thirds, eighths, tenths, sixteenths), e.g., you ate 1/2 of a sandwich and a friend ate 3/4 of the same sandwich; is this reasonable?		
c.	decimals greater than or equal to zero when used as monetary amounts, e.g., a pack of chewing gum costs what amount – $62, $.75, 9¢, $75.00, 750¢? Is this reasonable?		
	Benchmark 2: Number Systems and Their Properties		
	The student demonstrates an understanding of whole numbers with a special emphasis on place value; recognizes, uses, and explains the concepts of properties as they relate to whole numbers; and extends these properties to fractions (including mixed numbers), decimals, and money.		
	Fourth Grade Knowledge Base Indicators		
	The student...		
1.	identifies, models, reads, and writes numbers using numerals, words, and expanded notation from hundreds place through one-hundred thousands place, e.g., four hundred sixty-two thousand, two hundred eighty-four and fifty hundredths = 462,284.50 or 462,284.50 = (4 x 100,000) + (6 x 10,000) + (2 x 1,000) + (2 x 100) + (8 x 10) + (4 x 1) + (5 x .1) + (0 x .01) = 400,000 + 60,000 + 2,000 + 200 + 80 + 4 + .5 + .00.	1-4, 7	1-1, 4-1, 5-1
2.	classifies various subsets of numbers as whole numbers, fractions (including mixed numbers), or decimals.		
3.	identifies the place value of various digits from hundredths place through one hundred thousands place.	4	1-1, 6-1

		Student Book	Skill Builders
4.	identifies any whole number as even or odd.	8	
5.	**uses** the **concepts** of these properties with the whole number system and demonstrates their meaning including the use of concrete objects:		
a.	commutative properties of addition and multiplication, e.g., 12 + 18 = 18 + 12 and 8 x 9 = 9 x 8;	11	9-1, 20-2
b.	zero property of addition (additive identity) and property of one for multiplication (multiplicative identity), e.g., 24 + 0 = 24 and 75 x 1 = 75;\		
c.	associative properties of addition and multiplication, e.g., 4 + (2 + 3) = (4 + 2) + 3 and 2 x (3 x 4) = (2 x 3) x 4;	12	9-2
d.	symmetric property of equality applied to addition and multiplication, e.g., 100 = 20 + 80 is the same as 20 + 80 = 100 and 21 = 7 x 3 is the same as 3 x 7 = 21;		
e.	zero property of multiplication, e.g., 9 x 0 = 0 or 0 x 112 = 0;		
f.	distributive property, e.g., 6(7 + 3) = (6 • 7) + (6 • 3).	37	
	Fourth Grade Application Indicators		
	The student...		
1.	solves real-world problems with whole numbers from 0 through 10,000 using place value models; money; and the concepts of these properties to explain reasoning:		
a.	commutative properties of addition and multiplication, e.g., a student has a $5 and a $10, and a $20 bill; a student totals the amount to see how much can be spent shopping for school supplies. The student says: Because you can add in any order, I can rearrange the money and count $20, $10, and $5 for $20 + $10 + $5. Another student has 4 $5 bills. The student is asked the amount. The student says: I don't know 4 x 5 but I know 5 x 4 is $20, since multiplication can be done in any order.	11	9-1, 20-2
b.	zero property of addition, e.g., a student has 6 marbles in one pocket and none in the other pocket. How many marbles altogether?		
c.	property of one for multiplication, e.g., there are 24 students in our class, each student should have one math book; so I compute 24 x 1 = 24. Multiplying times 1 does not change the product because it is one group of 24.		
d.	associative properties of addition and multiplication, e.g., a student has two dimes and a quarter. Using coins or money models, there are at least 2 ways to group the coins to find the total. One way is 10¢ (dime) + 10¢ (dime) = 20¢, then add the quarter, so 20¢ + 25¢ (quarter) = 45¢. Another way 10¢ (dime) + 25¢ (quarter) = 35¢ so 35¢ + 10¢ =45¢This models that (D + D) + Q = D + (D + Q.)	12	9-2

		Student Book		Skill Builders
e.	zero property of multiplication, e.g., in science, you are observing a snail. The snail does not move over a 4-hour period. To figure its total movement, you say 4 x 0 = 0.			
2.	performs various computational procedures with whole numbers from 0 through 10,000 using the concepts of the following properties; extends the properties to fractions (halves, fourths, thirds, eights, tenths, sixteenths) including mixed numbers, and decimals through hundredths lace; and explains how the properties were used:			
a.	commutative property of addition and multiplication, e.g., 5 + 6 = 6 + 5, the student says: I now that 5 + 6 = 11 and adding in any order still gets the answer, so 6 + 5, is the same as 5 + 6. 4 x 6 = 6 x 4, the student says: I know that 4 x 6 = 24 and multiplying in any order still gets the answer, so 4 x 6 is the same as 6 x 4.	11		9-1, 20-2
b.	zero property of multiplication without computing, e.g.., 158 x 0 = 0; the student says: I know the answer (product) is zero because no matter how many factors you have, when you multiply with a 0, the product is zero.			
c.	associative property of addition, e.g., 9 + 8, the student says: I don't know 9 + 8, but I know my doubles of 8 + 8, so I made the 9 into 1 + 8 and then added 1 more to make 17.	12		9-2
3.	states the reason for using whole numbers, fractions, mixed numbers, or decimals when solving a given real-world problem.			
	Benchmark 3: Estimation			
	The student uses computational estimation with whole numbers, fractions (including mixed numbers) and money in a variety of situations.			
	Fourth Grade Knowledge Base Indicators			
	The student...			
1.	estimates whole number quantities from 0 through 10,000; fractions (halves, fourths, thirds); and monetary amounts through $1,000 using various computational methods including mental math, paper and pencil, concrete materials, and appropriate technology.	22		
2.	uses various estimation strategies and explains how they are used when estimating whole numbers quantities from 0 through 10,000; fractions [(halves, fourths, thirds) including mixed numbers)]; and monetary amounts through $1,000.	21-22		
3.	recognizes and explains the difference between an exact and an approximate answer, e.g., when asked how many desks are in the room the student gives an estimate of about 30 and then counts the desk and indicates an exact answer is 28 desks.	24		

		Student Book	Skill Builders
4.	selects from an appropriate range of estimation strategies and determines if the estimate is an **overestimate** or **underestimate**.		
	Fourth Grade Application Indicators		
	The student...		
1.	adjusts original whole number estimates of real-world problems using numbers from 0 through 10,000 based on additional information (a frame of reference), e.g., if given a small jar and told the number of pieces of candy it has in it, the student would adjust his/her original estimate of the number of pieces of candy in a larger jar.		
2.	estimates to check whether or not the result of a real-world problem using whole numbers from 0 through 10,000, fractions (including mixed numbers), and monetary amounts is reasonable and makes predictions based on the information, e.g., at the movies, you bought popcorn for $2.35, a soda for $2.50, and paid $4.50 for the ticket. Is it reasonable to say you spent $10? How much will you need to save to go to the movies once a week for the next month?	33-34	
3.	selects a reasonable magnitude from three given quantities based on a familiar problem situation and explains the reasonableness of selections, e.g., about how many new pencils will fit in your pencil box? Is it about 25, about 50, or about 100? The answer will depend on the size of your pencil box.		
4.	determines if a real-world problem calls for an exact or approximate answer and performs the appropriate computation using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.		
	Benchmark 4: Computation		
	The student models, performs, and explains computation with whole numbers, fractions, and money including the use of concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student...		
1.	computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete materials, and appropriate technology.		
2.	states and uses with efficiency and accuracy multiplication facts from 1 x 1 through 12 x 12 and corresponding division facts.	25, 27	20-3, 25-1
3.	performs and explains these computational procedures:		

		Student Book	Skill Builders
a.	adds and subtracts whole numbers from 0 through 100,000 and when used as monetary amounts;	13-20	10-1, 11-1, 12-1, 13-1, 15-1, 15-2
b.	multiplies through a three-digit whole number by a two-digit whole number;		22-1, 23-1
c.	multiplies whole dollar monetary amounts (through three-digits) by a one- or two-digit whole number, e.g. $45 x16;		47-3
d.	multiplies monetary amounts less than $100.00 by whole numbers less than ten, e.g., $14.12 x 7;	28	47-3
e.	divides through a two-digit whole number by a one-digit whole number with a one-digit whole number quotient with or without a remainder, e.g., 47 ÷ 5 = 9 r 2;	40-41	26-1, 27-1, 27-2, 28-1
f.	adds and subtracts fractions greater than or equal to zero with like denominators;	49-50	33-1, 33-2
g.	figures correct change through $20.00.	24	47-1
4.	identifies multiplication and division fact families.	41 T.G.	
5.	reads and writes horizontally, vertically, and with different operational symbols the same addition, subtraction, multiplication, or division expressions.	39	
6.	shows the relationship between these operations with the basic fact families (addition facts with sums from 0 through 20 and corresponding subtraction facts, multiplication facts from 1 x 1 through 12 x 12 and corresponding division facts) including the use of mathematical models:		
a.	addition and subtraction,		16-1
b.	addition and multiplication,	25	20-1
c.	multiplication and division,	38-39	25-3
d.	subtraction and division.	37	25-2
7.	finds factors and multiples of whole numbers from 1 through 100.		
	Fourth Grade Application Indicators		
	The student		
1.	solves one- and two-step real-world problems with one or two operations using these computational procedures:		
a.	adds and subtracts whole numbers from 0 through 10,000 and when used as monetary amounts, e.g., Lee buys a bicycle for $139, a helmet for $29, and a reflector for $6. He paid for it with a $200 check from his grandparents. How much will he have left from the $000 check?	13-21	47-1
b.	multiplies through a two-digit whole number by a two-digit whole number, e.g., at school, there are 22 students in each classroom. If there are 24 classes, how many students are in the classrooms?	28-32	

		Student Book	Skill Builders
c.	multiplies whole dollar monetary amounts (up through three-digit) by a one- or two-digit whole number, e.g., 112 third and fourth graders are planning a field trip. The cost per student is $9.00. How much will the trip cost?	28	47-3
d.	multiplies monetary amounts less than $100 by whole numbers less than ten, e.g., at the book fair, a student buys 8 books on animals for $269 each. How much did the student pay for the books?	28	47-3
e.	figures correct change through $20.00, e.g., buying a 65¢ drink, paying for it with a $1 bill, and then figuring the amount of change.	24	47-1
2.	generates a family of multiplication and division facts given one equation/fact, e.g., given 8 x 9 = 72, the other facts are 9 x 8 = 72, 72 ÷ 8 = 9, and 72 ÷ 9 = 8.		25-3
	STANDARD 2: ALGEBRA		
	The student uses algebraic concepts and procedures in a variety of situations.		
	Benchmark 1: Patterns		
	The student recognizes, describes, extends, develops, and explains relationships in patterns using concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student…		
1.	uses concrete objects, drawings, and other representations to work with types of patterns:		
a.	repeating patterns, e.g., an AB pattern is like 1-2, 1-2,…; an ABC pattern is like dog-horse-pig, dog-horse-pig,…;		
b.	growing patterns, e.g., 2, 5, 11, 20,…		3-1
2.	uses these **attributes** to generate patterns:		
a.	counting numbers related to number theory, e.g., multiples and factors through 12 or multiplying by 10, 100, or 1,000;	25	
b.	whole numbers that increase or decrease, e.g., 20, 15, 10,…;		3-1
c.	geometric shapes including one or two attributes changes.		
d.	measurements, e.g., 3 ft,. 6 ft., 9 ft., …;		
e.	money and time, e.g., $.25, $.50, $.75,… or 1:05 p.m., 1:10 p.m., 1:15 p.m.,…;		41-1
f.	things related to daily life, e.g., water cycle, food cycle, or life cycle;		

		Student Book	Skill Builders
g.	things related to size, shape, color, texture, or movement, e.g., rough, smooth, rough, smooth, rough, smooth, or clapping hands (kinesthetic patterns).		
3.	identifies, states and continues a pattern presented in visual various formats including numeric (list or table), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written.	6, 8	3-1
4.	generates:		
a.	a pattern (repeating, growing);	8	3-1
b.	a pattern using a function table (input/output machines, T-tables).	25 T.G.	25-1
	Fourth Grade Application Indicators		
	The student…		
1.	generalizes these patterns using a written description:		
a.	counting numbers related to number theory,		3-1
b.	whole number patterns,	8 T.G.	
c.	patterns using geometric shapes,		
d.	measurement patterns,		
e.	money and time patterns,		
f.	patterns using size, shape, color, texture, or movement.		
2.	recognizes multiple representations of the same pattern, e.g., skip counting by 5s to 60; whole number multiples of 5 through 60; the multiplication table of 5 given the numerical pattern of 5, 10, 15,…60; relating the concept of five minute time intervals to each of the numerals on a clock giving the pattern of 5, 10, 15,…60; one nickel, two nickels, three nickels,…; the number of fingers on twelve hands; recognizing that all of these representations are the same general pattern.	8	
	Benchmark 2: Variables, Equations, and Inequalities		
	The student uses variables, symbols, and whole numbers to solve equations including the use of concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student…		
1.	explains and uses variables and symbols to represent unknown whole number quantities from 0 through 1,000.	11-12	9-2
2.	solves one-step equations using whole numbers with one variable and a whole number solution that:		

		Student Book	Skill Builders
a.	find the unknown in a multiplication or division equation based on the multiplication facts from 1 x 1 through 12 x 12 and corresponding division facts, e.g., 60 = 10 x n;		48-1, 48-2, 49-1
b.	find the unknown in a money equation using multiplication and division based upon the facts and addition and subtraction with values through $10, e.g., 8 quarters + 10 dimes = y dollars;		
c.	find the unknown in a time equation involving whole minutes, hours, days, and weeks with values through 200, e.g., 180 minutes = y hours.		
3.	compares two whole numbers from 0 through 10,000 using the equality and inequality symbols (+, ≠, <, >) and their corresponding meanings (is equal to, is not equal to, is less than, is greater than).	5-6	
4.	reads and writes whole number equations and inequalities using mathematical vocabulary and notation, e.g., 15 = 3 x 5 is the same as fifteen equals three times five or 4,564 > 1,000 is the same as four thousand, five hundred sixty-four is greater than one thousand.		49-3
	Fourth Grade Application Indicators		
	The student...		
1.	represents real-world problems using variables and symbols with unknown whole number quantities from 0 through 1,000, e.g., How many weeks in twenty-eight days? Can be represented by n x 7 = 28 or n = 28 ÷ 7.		
2.	generates one-step equations to solve real-world problems with one unknown (represented by a variable or symbol) and a whole number solution that:		
a.	add or subtract whole numbers from 0 through 10,000; e.g., Homer, Kansas has 832 nonfiction books in its library. Homer, Idaho has 652 nonfiction books in its library. How many fewer nonfiction books are in Homer, Idaho's library? 832 - 652 = B;		49-2
b.	multiply or divide using the basic facts, e.g., Tom has a sticker book and each page holds 5 stickers. If the same number of stickers is placed on each page, he book will hold 30 stickers. How many pages are in his book? This is represented by 5 x S = 30 or 30 ÷ 5 = S.		25-3, 49-2
3.	generates:		
a.	real-world problems with one operation to match a given addition, subtraction, multiplication, or division equation using whole numbers through 99, e.g., given 12 x 3 = &, the student writes I was sick for 3 days, when I got back I had 3 pages of homework. There are 12 problems on each age. How many total problems must I work?		

		Student Book	Skill Builders
b.	number comparison statements using equality and inequality symbols (+, <, >) with whole numbers, measurement, and money, e.g., 1 ft < 15 in or 10 quarters > $2.	5-6	2-1
	Benchmark 3: Functions		
	The student recognizes and describes whole number relationships including the use of concrete objects in a variety of situations.	25 T.G.	25-1
	Fourth Grade Knowledge Base Indicators		
	The student...		
1.	states mathematical relationships between whole numbers from 0 through 1,000 using various methods including mental math, paper and pencil, concrete materials, and appropriate technology.	1-4	1-1, 6-1
2.	finds the values, determines the rule, and states the rule using symbolic notation with one operation of whole numbers from0 through 200 using a horizontal or vertical function table (input/output machine, T-table), e.g., using the function table, find the rule, the rule is N • 4.		
3.	generalizes numerical patterns using whole numbers from 0 through 200 with one operation by stating the rule using words, e.g. if the pattern is 46, 68, 90, 112, 134,...; in words, the rule is add 22 to the number before.		
4.	uses a function table (input/output machine, T-table) to identify, plot, and label the ordered pairs in the first quadrant of a coordinate plane.		50-5
	Fourth Grade Application Indicators		
	The student...		
1.	represents and describes mathematical relationships between whole numbers from 0 through 1,000 using concrete objects, pictures, written descriptions, symbols, equations, tables, and graphs.	1-4	1-1, 6-1
2.	finds the rule, states the rule, and extends numerical patterns using real-world applications using whole numbers form 0 through 200, e.g., the teacher must order supplies for field day. For every 12 students, one red rubber ball is needed. If 6 balls are ordered, how many students will be able to play? The rule is divide the number of students by 12 or for each group of 12 students, another ball is added. Other solutions might be using a pattern to count by 12 six times - 12, 24, 36, 48, 60, 72 or to skip count by 12 for each ball ordered.		
	Benchmark 4: Models		

		Student Book		Skill Builders
	The student develops and uses mathematical models including the use of concrete objects to represent and explain mathematical relationships in a variety of situations.	manipulatives used throughout		
	Fourth Grade Knowledge Base Indicators			
	The student…			
1.	knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships. Mathematical models include:			
a.	process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate planes/grids) to model computational procedures, mathematical relationships and equations;	26, 35, 40-41		3-1, 20-3, 25-2
b.	place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures;	1-4		1-1, 7-1, 8-1, 20-3, 21-1
c.	fraction and mixed number models fraction strips or pattern blocks) and decimal models (base ten blocks or coins) to compare, order, and represent numerical quantities;	45-48		30-1, 31-1, 32-1, 33-1, 33-2, 34-1
d.	money models (base ten blocks or coins) to compare, order, and represent numerical quantities;	24		47-2
e.	function tables (input/output machines, T-tables) to model numerical and algebraic relationships;			25-1
f.	two-dimensional geometric models (geoboards, dot paper, pattern blocks, or tangrams) to model perimeter, area, and properties of geometric shapes and three-dimensional geometric models (solids) and real-world objects to compare size and to model properties of geometric shapes;	60-62		
g.	two-dimensional geometric models (spinners), three-dimensional models (number cubes) and process models (concrete objects) to model probability;			50-4, 50-7
h.	graphs using concrete objects, pictographs, frequency tables, tables, horizontal and vertical bar graphs, line graphs, circle graphs, Venn diagrams, line plots, charts, and tables to organize and display data;	63-64		50-1 to 50-3
I.	Venn diagrams to sort data and show relationships.			
2.	creates a mathematical model to show the relationship between two or more things.			
	Fourth Grade Application Indicators			
	The student…			
1.	recognizes that various mathematical models can be used to represent the same problem situation. Mathematical models include:			

		Student Book	Skill Builders
a.	process models (concrete objects, pictures, diagrams, number lines, coordinate planes/grids, hundred charts, measurement tools, multiplication arrays, or division sets) to model computational procedures, mathematical relationships, and problem situations;	26, 35, 40-41	3-1, 20-3, 25-2
b.	place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to model problem situations;	1-4	1-1, 7-1, 8-1, 20-3, 21-1
c.	fraction and mixed number models (fraction strips or pattern blocks) and decimal models (base ten blocks or coins) to compare, order, and represent numerical quantities;	45-48	30-1, 31-1, 32-1, 33-1, 33-2, 34-1
d.	money models (base ten blocks or coins) to compare, order, and represent numerical quantities;	24	47-2
e.	function tables (input/output machines, T-tables) to model numerical and algebraic relationships;		25-1
f.	two-dimensional geometric models (geoboards, dot paper, pattern blocks, or tangrams) to model perimeter, area, and properties of geometric shapes and three-dimensional geometric models (solids) and real-world objects to compare size and to model properties of geometric shapes;	60-62	
g.	two-dimensional geometric models (spinners), three-dimensional geometric models (number cubes), and process models (concrete objects) to model probability;		50-4, 50-7
h.	graphs using concrete objects, pictographs, frequency tables, horizontal and vertical bar graphs, line graphs, Venn diagrams, line plots, charts, and tables to organize, display, explain and interpret data;	63-64	50-1 to 50-3
I.	Venn diagrams to sort data and show relationships.		
2.	selects a mathematical model and explains why some mathematical models are more useful than other mathematical models in certain situations.		
	STANDARD 3: GEOMETRY		
	The student uses geometric concepts and procedures in a variety of situations.		
	Benchmark 1: Geometric Figures and their Properties		
	The student recognizes geometric shapes and investigates their properties including the use of concrete objects in a variety of situations.	51-54	35-1, 36-1, 37-1, 38-1, 40-1
	Fourth Grade Knowledge Base Indicators		
	The student…		

		Student Book	Skill Builders
1.	recognizes and investigates properties of plane figures (circles, squares, rectangles, triangles, ellipses, rhombi, octagons, hexagons, pentagons) using concrete objects, drawings, and appropriate technology.		39-2
2.	recognizes, draws, and describes plane figures (circles, squares, rectangles, triangles, ellipses, rhombi, octagons, hexagons, pentagons).		39-2
3.	describes the solids (cubes, rectangular prisms, cylinders, cones, spheres, triangular prisms) using the terms faces, edges, and vertices (corners).		40-1
4.	recognizes and describes the square, triangle, rhombus, hexagon, parallelogram, and trapezoid from a pattern block set.		
5.	recognizes:		
a.	squares, rectangles, rhombi, parallelograms, trapezoids as special quadrilaterals;		
b.	similar and congruent figures;	54	39-1
c.	points, lines (intersecting, parallel, perpendicular), line segments, and rays.	51-53	
6.	determines if geometric shapes and real-world objects contain line(s) of symmetry and draws the line(s) of symmetry if the line(s) exist(s).		35-1, 36-1, 37-1, 38-1
	Fourth Grade Application Indicators		
	The student...		
1.	solves real-world problems by applying the properties of:		
a.	plane figures (circles, squares, rectangles, triangles, ellipses, rhombi, parallelograms, hexagons) and lines of symmetry, e.g., print your name of the school's name in all capital letters. Identify the lines of symmetry in each letter.		38-1
b.	solids (cubes, rectangular prisms, cylinders, cones, spheres), e.g., you want to design something to store school supplies. Which of the solids could you use for storage? Why did you select that solid?		40-1
2.	identifies the plane figures (circles, squares, rectangles, triangles, ellipses, rhombi, octagons, hexagons, pentagons, trapezoids) used to form a composite figure.		
	Benchmark 2: Measurement and Estimation		
	The student estimates and measures using standard and nonstandard units of measure including the use of concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		

		Student Book	Skill Builders
	The student...		
1.	uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure.		
2.	selects, explains the selection of, and uses measurement tools, units of measure, and degree of accuracy appropriate for a given situation **to measure**:		
a.	length, width, and height to the nearest fourth of an inch or to the nearest centimeter;	57	43-1
b.	volume to the nearest cup, pint, quart, or gallon; to the nearest liter; or to the nearest whole unit of a nonstandard unit;		44-1
c.	weight to the nearest ounce or pound or to the nearest whole unit of a nonstandard unit of measure;		
d.	temperature to the nearest degree;		
e.	time including lapsed time.	55-56	41-2
3.	states:		
a.	the number of weeks in a year;		
b.	the number of ounces in a pound;		44-1
c.	the number of milliliters in a liter, grams in a kilogram, and meters in a kilometer;		
d.	the number of items in a dozen.		
4.	converts:		
a.	within the customary system: inches and feet, feet and yards, inches and yards cups and pints, pints and quarts, quarts and gallons;	58	44-1
b.	within the metric system: centimeters and meters.	59	45-1
5.	finds:		
a.	the perimeter of two-dimensional figures given the measures of all the sides.	60-61	46-1
b.	the area of squares and rectangles using concrete objects.	62	46-2
	Fourth Grade Application Indicators		
	The student...		
1.	solves real-world problems by applying appropriate measurements:		
a.	length to the nearest fourth of an inch, e.g., how much longer is the math textbook than the science textbook?	57	43-1
b.	length to the nearest centimeter, e.g., a new pencil is bout how many centimeters long?		45-1

		Student Book	Skill Builders
c.	temperature to the nearest degree, e.g., what would the temperature outside be if it was a good day for sledding?		
d.	weight to the nearest whole unit (pounds, grams, nonstandard unit), e.g., Brendan went to the store and bought 2 packages of hamburger for a meatloaf. One of the hamburger packages weighed 1 lb. and 8 ozs. The other packages weighed 1 lb. and 7 ozs. What is the combined weight (to the nearest pound) of the two packages of hamburger?		
e.	time including elapsed time, e.g., Joy went to the mall at 10:00 a.m. She shopped until :15 p.m. How long did she shop at the mall?	55-56	41-2
f.	months in a year, e.g., if it takes 208 weeks to get a college degree, and Susan has completed one year, how many more weeks does she have to complete to get her degree?		
g.	minutes in a hour, e.g., Bob has spent 240 minutes working on a project for Science. How many hours has he worked on the project?		41-2
h.	perimeter of squares, rectangles, and triangles, e.g., a triangle has 3 equal sides of 32 inches. What is the perimeter of the triangle?	60-61	46-1
2.	estimates to check whether or not measurements and calculations for length, width, weight, volume, temperature, time, and perimeter in real-world problems are reasonable, e.g., which is the most reasonable weight for your scissors – 2 ounces, 2 pounds, 20 ounces, or 20 pounds? A teacher measures one side of a square desk top at 2 feet. Which of the following perimeters is reasonable for the desktop – 2 feet, 4 square feet, 6 square feet, or 8 feet?		
3.	adjusts original measurement or estimation for length, width, weight, volume, temperature, time, and perimeter in real-world problems based on additional information (a frame of reference), e.g., your class has a large jar and a small jar. You estimate it will take 5 small jars of liquid to fill the large jar. After you pour the contents of 2 small jars in , the large jar is more than half full. Should you need to adjust your estimate?		
	Benchmark 3: Transformational Geometry		
	The student reco0gnizes and performs one transformation on simple shapes or concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student...		
1.	describes a transformation using cardinal points or positional directions, e.g., go north three blocks and the west four blocks or move the triangle three units to the right and two units up.		50-5

		Student Book	Skill Builders
2.	recognizes, performs, and describes one transformation (reflection/flip, rotation/turn, translation/slide) on a two-dimensional figure or concrete object.		
3.	recognizes three-dimensional figures (rectangular prisms, cylinders) and concrete objects from various perspectives (top, bottom, sides, corners).		
	Fourth Grade Application Indicators		
	The student...		
1.	recognizes real-world transformations (reflection/flip, rotation/turn, translation/slide).		
2.	gives and uses cardinal points or positional directions to move from one location to another on a map or grid.		50-5
3.	describes the properties of geometric shapes or concrete objects that stay the same and the properties that change when a transformation is performed.		
	Benchmark 4: Geometry From an Algebraic Perspective		
	The student relate geometric concepts to a number line and the first quadrant of a coordinate plane in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student...		
1.	uses a number line (horizontal/vertical) to model whole number multiplication facts from 1 x 1 through 12 x 12 and corresponding division facts.	25	25-2
2.	uses points in the first quadrant of a coordinate plane (coordinate grid) to identify locations.		
3.	identifies and plots points as whole number ordered pairs in the first quadrant of a coordinate plane (coordinate grid).		
4.	organizes whole number data using a T-table and plots the ordered pairs in the first quadrant of a coordinate plane (coordinate grid).		
	Fourth Grade Application Indicators		
	The student...		
1.	solves real-world problems that involve distance and location using coordinate planes (coordinate grids) and map grids with positive whole number and letter coordinates, e.g., identifying locations and giving the following directions to move from location to another.		50-5

		Student Book	Skill Builders
2.	solves real-world problems by plotting whole number ordered pairs in the first quadrant of a coordinate plane (coordinate grid), e.g., given that each movie ticket cost $5, the student graphs the number of tickets bought and the total cost of tickets to attend a movie.		
	STANDARD 4: DATA		
	The student uses concepts and procedures of data analysis in a variety of situations.		
	Benchmark 1: Probability		
	The student applies the concepts of probability to draw conclusions and to make predictions and decisions including the use of concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student…		
1.	recognizes that the probability of an impossible event is zero and that the probability of a certain event is one.		50-4
2.	lists all possible outcomes of a simple event in an experiment or simulation including the use of concrete objects.		50-7
3.	recognizes and states the probability of a simple event in an experiment or simulation, e.g., when a coin ifs flipped, the probability of landing heads up is /2 and the probability of landing tails up is 1/2. This can be read as one out of two or one half.		50-7
	Fourth Grade Application Indicators		
	The student…		
1.	makes predictions about a simple event in an experiment or simulation; conducts an experiment or simulation including the use of concrete objects; records the results in a chart, table, or graph; and uses the results to draw conclusions about the event.		50-4
2.	uses the results from a completed experiment or simulation of a simple event to make predictions in a variety of real-world problems, e.g., the manufacturer of Crunchy Flakes puts a prize in 20 out of every 100 boxes. What is the probability that a shopper will fid a prize in a box of Crunchy Flakes, if they purchase 10 boxes.		50-7
3.	compares what should happen (theoretical probability/expected results) with what did happen (empirical probability/experimental results in an experiment or simulation with a simple event.		
	Benchmark 2: Statistics		

		Student Book	Skill Builders
	The student collects, organizes, displays, explains, and interprets numerical (whole numbers) and non-numerical data sets including the use of concrete objects in a variety of situations.		
	Fourth Grade Knowledge Base Indicators		
	The student...		
1.	organizes, displays, and reads numerical (quantitative) and non-numerical (qualitative) data in a clear, organized, and accurate manner including a title, labels, categories, and whole number intervals using these **data displays**:		
a.	graphs using concrete objects, (for testing, does **not** have to use concrete objects in items);		
b.	pictographs with a symbol or picture representing one, two, five, ten, twenty-five, or one-hundred including partial symbols when the symbol represents an even amount;	64	50-3
c.	frequency tables (tally marks);		50-1
d.	horizontal and vertical bar graphs;	63	50-1, 50-2
e.	Venn diagrams or other pictorial displays, e.g., glyphs;		
f.	line plots'		
g.	charts and tables;		
h.	line graphs;		
I.	circle graphs;		
2.	collects data using different techniques (observations, polls, surveys, interviews, or random sampling) and explains the results.		
3.	identifies, explains, and calculates or finds these statistical measures of a data set with less than ten whole number data points using whole numbers from 0 through 1,000:		
a.	minimum and maximum values,		
b.	range,		
c.	mode,		
d.	median when data set has an odd number of data points,		
e.	mean when data set has a whole number mean.		50-6
	Fourth Grade Application Indicators		
	The student...		
1.	interprets and uses data to make reasonable inferences and predictions, answer questions and make decisions from these data displays:		
a.	graphs using concrete objects;		

		Student Book	Skill Builders
b.	pictographs with a symbol or picture representing one, two, five, ten, twenty-five, or one-hundred including partial symbols when the symbol represents an even amount;	64	50-3
c.	frequency tables (tally marks);		50-1
d.	horizontal and vertical bar graphs;	63	50-1, 50-2
e.	Venn diagrams or other pictorial displays;		
f.	line plots;		
g.	charts and tables;		
h.	line graphs.		
2.	uses these statistical measures of a data set using whole numbers from 0 through 1,000 with less than ten whole number data points to make reasonable inferences and predictions, answer questions, and make decisions:		
a.	minimum and maximum values,		
b.	range,		
c.	mode,		
d.	median when the data set has an odd number of data points,		
e.	mean when the data set has a whole number mean.		
3.	recognizes that the same data set can be displayed in various formats including the use of concrete objects.		
4.	recognizes and explains the effects of scale and interval changes on graphs of whole number data sets.		