

**Los Angeles Unified School District**  
**Office of Curriculum, Instruction, and School Support**  
**2010-2011 Elementary Mathematics Instructional Guide (MIG)**

**Introduction to the Document:**

With the newly adopted enVisionMATH program, it has been found that a revision to the Elementary Mathematics Instructional Guide (MIG) was needed. The revision of the MIG is attached. Most critically it ensures the teaching and assessment of all grade level standards by the California Standards Testing dates. Additionally, the revised MIG is intended to be a one-stop tool for teachers, administrators, parents, and other school support personal. It blends CST blueprints, California State Mathematics Standards, enVisionMATH Topics which address those standards, and Instructional Blocks into one easy-to-read resource.

The MIG is a living document—it is neither set in stone for all time nor is it perfect. Teachers and other users are encouraged to provide on-going feedback as to its accuracy, usability, and content. Please go to [www.lausd.net/math](http://www.lausd.net/math) to the Announcement tab. Click on the **2010-2011 MIG** link, and share your comments and suggestions. Your participation in making this instructional guide a meaningful and useful tool for all is needed and appreciated.

**Organization of the Document:**

This Instructional Guide for Mathematics has been organized in several ways to provide flexibility to teachers in planning instruction. Teachers and other users are encouraged to review the various versions and to choose the one that best fits their instructional planning needs.

Under the section Organized by Standards, the standards are listed as they are found in the Mathematics Framework for California Public Schools. In this section, teachers and other users will be able to see at a glance the mathematics standard number and wording for the grade level, the number of questions on the CST for each standard (applicable for 2<sup>nd</sup> through 6<sup>th</sup> grade), in which textbook topics (chapters) the standards can be found, and in which Instructional Block(s) the standard will be taught and assessed. For quick identification, the essential key standards, as determined by the Mathematics Framework, are noted by **bold type** and a key ↔ symbol.

Under the section Organized by Instructional Block, the standards are listed in a developmental sequence. A significant difference with this section versus the organization by standards is that, in some cases, portions of the standards are lined-out or modified for that particular Instructional Block (IB) as that part of the standard is not taught during that time. While the entire standard will be taught and assessed by the time the CST is given, some longer, more complex standards are parsed out over multiple IB's to allow students

time to develop their understanding of the concept and the essential skills they will need in order to be successful. Please note the following examples:

#### Second Grade example:

- Number Sense 1.2 asks student to: Use words, models, and expanded forms (e.g.,  $45 = 4 \text{ tens} + 5$ ) to represent numbers (to 1,000).
- How NS1.2 will look in IB#1: Use words, models, and expanded forms (e.g.,  $45 = 4 \text{ tens} + 5$ ) to represent numbers (to ~~1,000~~ 100).
- How NS1.2 will look in IB#3: Use words, models, and expanded forms (e.g.,  $45 = 4 \text{ tens} + 5$ ) to represent numbers (to 1,000).

#### Fourth Grade example:

- Number Sense 2.1 asks students to: Estimate and compute the sum or difference of whole numbers and positive decimals to two places.
- How NS2.1 will look in IB#1: Estimate and compute the sum or difference of whole numbers ~~and positive decimals to two places.~~
- How NS2.1 will look in IB#2: Estimate and compute the sum or difference of whole numbers and positive decimals to two places.

As in the organized by standards section, this section allows teachers and other users to be able to see at a glance the mathematics standard number and wording for the grade level, the number of questions on the CST for each standard (applicable for 2<sup>nd</sup> through 6<sup>th</sup> grade), in which textbook topics (chapters) the standards can be found, and in which Instructional Block(s) the standard will be taught and assessed. Again for quick identification, the essential key standards, as determined by the Mathematics Framework, are noted by bold type and a key symbol.

### Symbols and Footnotes:

Additional key information has been embedded into this guide to assist teachers and others in instructional decision-making. Next to the numbers listed in the *enVisionMATH* topics section, occasionally there will be a symbol indicating that a topic has lessons that address standards outside of the targeted grade level. This is designed to assist in instructional decision-making when choosing lessons to prepare and present based on student needs. Please note the following examples:

First Grade example:

2† indicates that this topic contains lessons that include Kindergarten standards, whereas 18‡ indicates that this topic contains lessons that include Second grade standards.

Fifth Grade example:

5‡ indicates that this topic contains lessons that include Fourth grade standards, whereas 14⊕ indicates that this topic contains lessons that include Sixth grade standards.

All symbols used in the guide are defined in the footnote section of the document on every page.

### **General Calendar for Instruction and Assessment:**

It is imperative to have this information in the hands of our teachers, administrators, and instructional support staff, especially those working at multi-track schools, prior to the beginning of the 2010-2011 school year. However, as of the publication of this document, all assessment dates listed are currently TENTATIVE pending the new Periodic Assessment contract. At this time, *the schedule included in this guide is meant for initial planning purposes only*. As contracts are finalized and dates are officially set, updates to the MIG will be forthcoming. As updates occur, they will be sent electronically to all Local District mathematics contacts for distribution to all schools. Updates will also be posted on the LAUSD PreK-12 Mathematics website: [www.lausd.net/math](http://www.lausd.net/math). Please check this site regularly for updates. The instructional calendar includes the furlough days for 2010-2011.

The first three Instructional Blocks (IB) and their periodic assessments will reflect the standards or portions of the standards as indicated in the *Organized by Instructional Block* portion of the guide. The guide is designed to ensure full instruction and assessment of the grade level standards by the CST window.

The fourth IB is scheduled for after the CST window. This block of time is intended for teachers to use, based on student data, to strengthen areas of weakness the students may still have (intervention) or to “step up” to the next grade level. This is where out-of-grade-level lessons which may have been skipped could be taught or other mathematical concepts could be deepened to support the students’ success in the next grade level.

## **Grade Level Expectations:**

Included on the first page of each grade level guide is a boxed statement of grade level expectations. This is taken directly from the Mathematics Framework for California Public Schools. This provides teachers, parents, students, administrators, and other instructional support staff an overview of what students should accomplish by the end of the targeted grade level.

## **Using the Mathematics Instructional Guide:**

The guide can be thought of as a menu. It cannot be expected that one would do every lesson and activity from the instructional resources provided. To try to teach every lesson or use every activity would be like ordering everything on a menu for a single meal. It is not a logical option. Nor is it possible given the number of instructional days and the quantity of resources. That is why the document is called a "Mathematics Instructional Guide" and not a "Mathematics Pacing Plan." And, like a menu, teachers select, based on instructional data, which lessons best fit the needs of their students – sometimes students need more time with a concept and at other times, less.

An effective way to use this guide is to review the mathematical concepts to be taught in each Instructional Block. From there, teachers would map out how much time they feel is needed to teach the concepts within the block based on the data of their students' needs. For example, some classes may need more time devoted to developing division concepts, while another class at the same grade level may need more focused time on understanding the functions of fractions within an Instructional Block.

The starting point for instructional planning is the standards. The textbook resources are just the first tools for teachers in helping to build mathematical understanding. Like going to a restaurant specializing in customer service, there may be times one wishes to order "off-the-menu". There are hundreds of resources available, both publisher- and teacher-created, that may be used to best teach a concept or skill. Collaborative planning, both within and among grade levels, is strongly encouraged in order to design effective instructional programs for students.

## **Input and Feedback**

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# Instructional Components for PreK-12 Mathematics Program 2010-11

## Kindergarten – 5<sup>th</sup> Grade General Calendar\*

Calendar	Activity	Track	Instructional Block 1	Instructional Block 2	Instructional Block 3	Instructional Block 4
<b>Single Track</b>	Instruction	---	Sept. 13-Nov. 18	Nov. 19; Nov. 29-Dec. 17; Jan 10-Feb. 17	Feb. 18-Apr. 15	Apr. 25-June 24
	Assessment		Nov. 16-18*	Feb. 15-17*	Apr. 13-15*	N/A
<b>Three Track</b>	Instruction	A	Aug. 30-Oct. 21	Oct. 22-Nov. 19; Nov. 29-Dec. 16	Dec. 17-22; Mar. 7-Apr. 28	Apr. 29-June 30
	Assessment		Oct. 19-21*	Dec. 14-16*	Apr. 26-28*	N/A
	Instruction	B	July 6-Aug. 26	Aug. 27; Oct. 25-Nov. 19; Nov. 29-Dec. 16	Dec. 17-22; Jan. 3-Feb. 25	Feb. 28-Mar. 4; May 5-June 30
	Assessment		Aug. 24-26*	Dec. 14-16*	Feb. 23-25*	N/A
	Instruction	C	July 6-Aug. 26	Aug. 27-Oct. 20	Oct. 21-22; Jan. 3-Feb. 18	Feb. 28-May 3
	Assessment		Aug. 24-26*	Oct. 18-20*	Feb. 16-18*	N/A
<b>Four track</b>	Instruction	A	Aug. 17-Oct. 21	Oct. 22-Nov. 19; Nov. 29-Dec. 17; Feb. 16-Mar. 3	Mar. 4-Apr. 28	Apr. 29-June 28
	Assessment		Oct. 19-21*	Mar. 1-3*	Apr. 26-28*	N/A
	Instruction	B	July 6-Sept. 10	Sept. 13-29; Nov. 15-19; Nov. 29-Dec. 17; Jan 3-20	Jan. 21-Mar. 17	Mar. 18-25; May 9-June 28
	Assessment		Sept. 8-10*	Jan. 18-20*	Mar. 15-17*	N/A
	Instruction	C	July 6-Aug. 13; Sept. 30-Oct. 28	Oct. 29-Nov. 19; Nov. 29-Dec. 17; Jan. 3-20	Jan. 21-Feb. 11; Mar. 28-Apr. 28	Apr. 29-June 28
	Assessment		Oct. 26-28*	Jan. 18-20*	Apr. 26-28*	N/A
	Instruction	D	July 6-Sept. 10	Sept. 13-Nov. 8	Nov. 9-10; Jan. 3-Feb. 17	Feb. 18: Feb. 28-May 6
	Assessment		Sept. 8-10*	Nov. 4-5, 8*	Feb. 15-17*	N/A

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# Fourth Grade

## Revision for 2010-11 MIG Topics and Instructional Components\*

Fourth Grade	Instructional Block 1				Instructional Block 2				Instructional Block 3				Instructional Block 4			
<b>Topics addressing Standards</b>	1-6				7-12				13-20				Step up to 5 <sup>th</sup> grade			
<b>Assessment windows: Single Track*</b>	November 16, 17, 18				February 15, 16, 17				April 13, 14, 15				CST Window: May 9-27			
<b>Assessment windows: 4 Track*</b>	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
	Oct. 19-21	Sept. 8-10	Oct. 26-28	Sept. 8-10	March 1-3	Jan. 18-20	Jan. 18-20	Nov. 4-8	Apr. 26-28	March 15-17	Apr. 26-28	Feb. 15-17	May 9- June 1	May 9- June 1	May 9- June 1	Mar. 21- Apr. 11

**NOTES:** Topic 3 and 4 are mostly a review of Third grade standards  
 Topic 1 & 15 include lessons covering Third grade standards  
 Topic 10 is mostly a preview of Fifth grade standards  
 Topic 12, 14, 16, & 18 include lessons covering Fifth grade standards

By the end of grade four, students understand large numbers and addition, subtraction, multiplication, and division of whole numbers. They describe and compare simple fractions and decimals. They understand the properties of, and the relationships between, plane geometric figures. They collect, represent, and analyze data to answer questions.

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# Concept Lesson Alignment for the 2010-2011 Mathematics Instructional Guide Instructional Blocks

Grade Level	Name of Lesson	Standard Number and Concept Developed	Instructional Block
3	“The Flower Garden”	NS 3.1: Comparing Fractions	2
	“Elena’s Patterns”	NS 2.4: Multiplication of multi-digit numbers by single-digit numbers	2
	“Measuring Toy Boxes”	MG 1.2: Estimate or determine the volume of solid figures (rectangular prisms)	3
	“It’s Money In the Bank”	NS 3.3: Adding and Subtracting Decimals	3
4	“Cookie Containers”	NS 3.4: Solve problems involving multi-digit numbers by a single-digit number	1
	“Fractions on a Number Line”	NS 1.9: Comparing Fractions Using a Number Line	2
	“Stacking Blocks”	AF 1.5: Find the second value when given first value in a functional relationship, e.g. a linear function MG 2.1: Create a graph representing this linear functional relationship	3
	“Puppy Play Pen”	MG 1.3: Rectangles with the same area can have different perimeters MG 1.4: Use formulas for perimeters and areas of rectangles (including squares)	3
5	“Off to the Races”	NS 1.5: Identify relative position of fractions, mixed numbers, and decimals	2
	“Candy Bar Capers”	NS 2.3: Adding and Subtracting Fractions	2
	“The Game of Chips”	NS 2.1: Add integers	3
	“Earth Day”	AF 1.2: Write and evaluate one-variable equations AF 1.5: Solve problems involving linear functions using graphs and manipulating equations	3

# FOURTH GRADE

## ORGANIZED BY STANDARDS

Revision for 2010-11 MIG Topics and Instructional Components

By the end of grade four, students understand large numbers and addition, subtraction, multiplication, and division of whole numbers. They describe and compare simple fractions and decimals. They understand the properties of, and the relationships between, plane geometric figures. They collect, represent, and analyze data to answer questions.

- NOTES:** Topic 3 and 4 are mostly a review of Third grade standards  
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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<u>enVisionMATH</u> TOPIC*	IB 1	IB 2	IB 3	After CST
---	NS 1.0	Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers:	1‡, 11	✓	✓		
3	<del>↔</del> NS 1.1	<b>Read and write whole numbers in the millions.</b>	1‡	✓			
2	<del>↔</del> NS 1.2	<b>Order and compare whole numbers and decimals to two decimal places.</b>	1‡, 11	✓	✓		
2	<del>↔</del> NS 1.3	<b>Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.</b>	2	✓			

\* based on enVisionMATH Overview and Implementation Guide.

\*\*fractional values indicate rotated standards (e.g., 1/2 = rotated every 2 years; 1/3 = rotated every 3 years).

\*\*\*not assessable in a multiple-choice format

~~↔~~**Bold** standards are essential Key Standards for the grade level. These comprise 70% of the CST.

~~Double lined through~~ are portions of the standard not taught in that topic. Full coverage of the standard will occur in later topics.

✓ = Instructional Block in which the standard is taught according to LAUSD Mathematics Instructional Guide.

†Topic 3 and 4, with the exception of lesson 3-1, 3-6, 3-7, 3-10, and 4-2, cover Third grade standards.

‡Topics 1 and 15 include Third grade standards.

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⊕ Topics 12, 14, 16, and 18 include Fifth grade standards.



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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<u>enVisionMATH</u> TOPIC*	IB 1	IB 2	IB 3	After CST
NA***	<b>↔</b> NS 1.4	<b>Decide when a rounded solution is called for and explain why such a solution may be appropriate.</b>	6, 7	✓	✓		
1/2**	NS 1.5	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).	9, 11		✓		
1/2**	NS 1.6	Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or $.50$ ; $7/4 = 1 \frac{3}{4} = 1.75$ ).	11		✓		
1	NS 1.7	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.	9, 11		✓		
3	<b>↔</b> NS 1.8	<b>Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").</b>	14⊕			✓	
3	<b>↔</b> NS 1.9	<b>Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.</b>	11		✓		
---	NS 2.0	Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals:	12⊕		✓		
1	NS 2.1	Estimate and compute the sum or difference of whole numbers and positive decimals to two places.	2, 12⊕	✓	✓		
1/2**	NS 2.2	Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.	12⊕		✓		

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVision</i> MATH TOPIC*	IB 1	IB 2	IB 3	After CST
---	↔NS 3.0	Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:	2, 3 <sup>†</sup> , 6, 7, 12 <sup>⊕</sup> , 13	✓	✓	✓	
3	↔NS 3.1	Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi digit numbers.	2, 14 <sup>⊕</sup>	✓		✓	
3	↔NS 3.2	Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi digit number by a two-digit number and for dividing a multi digit number by a one-digit number; use relationships between them to simplify computations and to check results.	6, 7	✓	✓		
3	↔NS 3.3	Solve problems involving multiplication of multi digit numbers by two-digit numbers.	6	✓			
3	↔NS 3.4	Solve problems involving division of multi digit numbers by one-digit numbers.	7		✓		
---	NS 4.0	Students know how to factor small whole numbers:	7		✓		
1/2**	NS 4.1	Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$ ).	7		✓		
2	↔NS 4.2	<b>Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.</b>	7		✓		
---	AF 1.0	Students use and interpret variables, mathematical symbols, and	5, 10 <sup>■</sup> , 13, 18 <sup>⊕</sup>	✓	✓	✓	

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<u>enVisionMATH</u> TOPIC*	IB 1	IB 2	IB 3	After CST
		properties to write and simplify expressions and sentences:					
1	AF 1.1	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).	4†, 5, 13, 18⊕	✓		✓	
5	<del>AF 1.2</del>	<b>Interpret and evaluate mathematical expressions that now use parentheses.</b>	5	✓			
3	<del>AF 1.3</del>	<b>Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.</b>	5	✓			
1	AF 1.4	Use and interpret formulas (e.g., area = length x width or $A = lw$ ) to answer questions about quantities and their relationships.	15‡, 18⊕			✓	
2	<del>AF 1.5</del>	<b>Understand that an equation such as <math>y = 3x + 5</math> is a prescription for determining a second number when a first number is given.</b>	18⊕			✓	
---	<del>AF 2.0</del>	<b>Students know how to manipulate equations:</b>	13			✓	
3	<del>AF 2.1</del>	<b>Know and understand that equals added to equals are equal.</b>	13			✓	
3	<del>AF 2.2</del>	<b>Know and understand that equals multiplied by equals are equal.</b>	13			✓	
---	MG 1.0	Students understand perimeter and area:	15‡			✓	
1/2**	MG 1.1	Measure the area of rectangular shapes by using appropriate units, such as square centimeter ( $\text{cm}^2$ ), square meter ( $\text{m}^2$ ), square kilometer ( $\text{km}^2$ ), square inch ( $\text{in}^2$ ), square yard ( $\text{yd}^2$ ), or square mile ( $\text{mi}^2$ ).	15‡			✓	
1/2**	MG 1.2	Recognize that rectangles that have the same area can have different	15‡			✓	

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<u>enVisionMATH</u> TOPIC*	IB 1	IB 2	IB 3	After CST
		perimeters.					
1/2**	MG 1.3	Understand that rectangles that have the same perimeter can have different areas.	15‡			✓	
1/2**	MG 1.4	Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes.	15‡			✓	
---	<b>↔</b> MG 2.0	<b>Students use two-dimensional coordinate grids to represent points and graph lines and simple figures:</b>	17, 18⊕			✓	
2	<b>↔</b> MG 2.1	<b>Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation <math>y = 3x</math> and connect them by using a straight line).</b>	18⊕			✓	
2	<b>↔</b> MG 2.2	<b>Understand that the length of a horizontal line segment equals the difference of the <math>x</math>- coordinates.</b>	17			✓	
2	<b>↔</b> MG 2.3	<b>Understand that the length of a vertical line segment equals the difference of the <math>y</math>- coordinates.</b>	17			✓	
---	MG 3.0	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems:	8, 19		✓	✓	
1	MG 3.1	Identify lines that are parallel and perpendicular.	8		✓		
1	MG 3.2	Identify the radius and diameter of a circle.	8		✓		
1/3**	MG 3.3	Identify congruent figures.	19			✓	

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1/3**	MG 3.4	Identify figures that have bilateral and rotational symmetry.	19			✓	
1/3**	MG 3.5	Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90°, 180°, 270°, and 360° are associated, respectively, with 1/4, 1/2, 3/4, and full turns.	8, 19		✓	✓	
1/3**	MG 3.6	Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.	8		✓		
1/3**	MG 3.7	Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.	8		✓		
1/3**	MG 3.8	Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).	8		✓		
---	SDAP 1.0	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	1‡, 16⊕, 18⊕, 20	✓		✓	
1	SDAP 1.1	Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.	16⊕			✓	
2/3**	SDAP 1.2	Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.	16⊕			✓	
1	SDAP 1.3	Interpret one-and two-variable data graphs to answer questions about a situation.	16⊕			✓	
---	SDAP 2.0	Students make predictions for simple probability situations:	20			✓	

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# FOURTH GRADE

CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<u>enVisionMATH</u> TOPIC*	IB 1	IB 2	IB 3	After CST
2/3**	SDAP 2.1	Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).	20			✓	
2/3**	SDAP 2.2	Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3 /4).	20			✓	

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# FOURTH GRADE

## ORGANIZED BY INSTRUCTIONAL BLOCK

Revision for 2010-11 MIG Topics and Instructional Components

By the end of grade four, students understand large numbers and addition, subtraction, multiplication, and division of whole numbers. They describe and compare simple fractions and decimals. They understand the properties of, and the relationships between, plane geometric figures. They collect, represent, and analyze data to answer questions.

- NOTES:** Topic 3 and 4 are mostly a review of Third grade standards  
 Topic 1 & 15 include lessons covering Third grade standards  
 Topic 10 is mostly a preview of Fifth grade standards  
 Topic 12, 14, 16, & 18 include lessons covering Fifth grade standards

CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<u>enVisionMATH</u> TOPIC*	IB 1	IB 2	IB 3	After CST
---	NS 1.0	<del>Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers.</del>	1 ‡	✓			
3	↔ NS 1.1	<b>Read and write whole numbers in the millions.</b>	1 ‡	✓			
2	↔ NS 1.2	<b>Order and compare whole numbers and decimals to two decimal places.</b>	1 ‡	✓			

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVisionMATH</i> TOPIC*	IB 1	IB 2	IB 3	After CST
---	SDAP 1.0	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	1‡	✓			
2	<b>↔NS 1.3</b>	<b>Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.</b>	2	✓			
1	NS 2.1	Estimate and compute the sum or difference of whole numbers <del>and positive decimals to two places.</del>	2	✓			
---	<b>↔NS 3.0</b>	<b>Students solve problems involving addition, subtraction, <del>multiplication, and division</del> of whole numbers and understand the relationships among the operations:</b>	2	✓			
3	<b>↔NS 3.1</b>	<b>Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi digit numbers.</b>	2	✓			
---	<b>↔NS 3.0</b>	<b>Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:</b>	3†	✓			
1	AF 1.1	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).	4†	✓			
---	AF 1.0	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	5	✓			
1	AF 1.1	Use letters, boxes, or other symbols to stand for any number in	5	✓			

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# FOURTH GRADE

CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVisionMATH</i> TOPIC*	IB 1	IB 2	IB 3	After CST
		simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).					
5	↔AF 1.2	<b>Interpret and evaluate mathematical expressions that now use parentheses.</b>	5	✓			
3	↔AF 1.3	<b>Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.</b>	5	✓			
NA***	↔NS 1.4	<b>Decide when a rounded solution is called for and explain why such a solution may be appropriate.</b>	6	✓			
---	↔NS 3.0	<b>Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:</b>	6	✓			
3	↔NS 3.2	<b>Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi digit number by a two-digit number and for dividing a multi digit number by a one digit number; use relationships between them to simplify computations and to check results.</b>	6	✓			
3	↔NS 3.3	<b>Solve problems involving multiplication of multi digit numbers by two-digit numbers.</b>	6	✓			
NA***	↔NS 1.4	<b>Decide when a rounded solution is called for and explain why such a solution may be appropriate.</b>	7		✓		

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# FOURTH GRADE

CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVision</i> MATH TOPIC*	IB 1	IB 2	IB 3	After CST
---	<b>↔NS 3.0</b>	<b>Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:</b>	7		✓		
3	<b>↔NS 3.2</b>	<b>Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi digit number by a two-digit number and for dividing a multi digit number by a one-digit number; use relationships between them to simplify computations and to check results.</b>	7		✓		
3	<b>↔NS 3.4</b>	<b>Solve problems involving division of multi digit numbers by one-digit numbers.</b>	7		✓		
---	NS 4.0	Students know how to factor small whole numbers:	7		✓		
1/2**	NS 4.1	Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$ ).	7		✓		
2	<b>↔NS 4.2</b>	<b>Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.</b>	7		✓		
---	MG 3.0	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems:	8		✓		
1	MG 3.1	Identify lines that are parallel and perpendicular.	8		✓		
1	MG 3.2	Identify the radius and diameter of a circle.	8		✓		
1/3**	MG 3.5	Know the definitions of a right angle, an acute angle, and an	8		✓		

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# FOURTH GRADE

CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVisionMATH</i> TOPIC*	IB 1	IB 2	IB 3	After CST
		obtuse angle. <del>Understand that <math>90^\circ</math>, <math>180^\circ</math>, <math>270^\circ</math>, and <math>360^\circ</math> are associated, respectively, with <math>1/4</math>, <math>1/2</math>, <math>3/4</math>, and full turns.</del>					
1/3**	MG 3.6	Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.	8		✓		
1/3**	MG 3.7	Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.	8		✓		
1/3**	MG 3.8	Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).	8		✓		
1/2**	NS 1.5	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).	9		✓		
1	NS 1.7	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; <del>and relate a fraction to a simple decimal on a number line.</del>	9		✓		
---	AF 1.0	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	10■		✓		
---	NS 1.0	Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and	11		✓		

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVisionMATH</i> TOPIC*	IB 1	IB 2	IB 3	After CST
		decimals relate to simple fractions. Students use the concepts of negative numbers:					
2	<b>↔NS 1.2</b>	<b>Order and compare whole numbers and decimals to two decimal places.</b>	11		✓		
1/2**	NS 1.5	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).	11		✓		
1/2**	NS 1.6	Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or $.50$ ; $7/4 = 1 \frac{3}{4} = 1.75$ ).	11		✓		
1	NS 1.7	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.	11		✓		
3	<b>↔NS 1.9</b>	<b>Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.</b>	11		✓		
---	NS 2.0	Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals:	12⊕		✓		
1	NS 2.1	Estimate and compute the sum or difference of whole numbers and positive decimals to two places.	12⊕		✓		
1/2**	NS 2.2	Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.	12⊕		✓		

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVisionMATH</i> TOPIC*	IB 1	IB 2	IB 3	After CST
---	↔NS 3.0	<b>Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:</b>	12⊕		✓		
---	↔NS 3.0	<b>Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:</b>	13			✓	
---	AF 1.0	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	13			✓	
1	AF 1.1	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).	13			✓	
---	↔AF 2.0	<b>Students know how to manipulate equations:</b>	13			✓	
3	↔AF 2.1	<b>Know and understand that equals added to equals are equal.</b>	13			✓	
3	↔AF 2.2	<b>Know and understand that equals multiplied by equals are equal.</b>	13			✓	
3	↔NS 1.8	<b>Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").</b>	14⊕			✓	
3	↔NS 3.1	<b>Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi digit numbers.</b>	14⊕			✓	
1	AF 1.4	Use and interpret formulas (e.g., area = length x width or $A = lw$ )	15‡			✓	

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		to answer questions about quantities and their relationships.					
---	MG 1.0	Students understand perimeter and area:	15‡			✓	
1/2**	MG 1.1	Measure the area of rectangular shapes by using appropriate units, such as square centimeter (cm <sup>2</sup> ), square meter (m <sup>2</sup> ), square kilometer (km <sup>2</sup> ), square inch (in <sup>2</sup> ), square yard (yd <sup>2</sup> ), or square mile (mi <sup>2</sup> ).	15‡			✓	
1/2**	MG 1.2	Recognize that rectangles that have the same area can have different perimeters.	15‡			✓	
1/2**	MG 1.3	Understand that rectangles that have the same perimeter can have different areas.	15‡			✓	
1/2**	MG 1.4	Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes.	15‡			✓	
---	SDAP 1.0	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	16⊕			✓	
1	SDAP 1.1	Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.	16⊕			✓	
2/3**	SDAP 1.2	Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.	16⊕			✓	
1	SDAP 1.3	Interpret one-and two-variable data graphs to answer questions	16⊕			✓	

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CST # of Items	Grade 4 Standard Number	Grade 4 Standard Wording	<i>enVisionMATH</i> TOPIC*	IB 1	IB 2	IB 3	After CST
		about a situation.					
---	<b>↔MG 2.0</b>	<b>Students use two-dimensional coordinate grids to represent points and graph lines and simple figures:</b>	17			✓	
2	<b>↔MG 2.2</b>	<b>Understand that the length of a horizontal line segment equals the difference of the <math>x</math>- coordinates.</b>	17			✓	
2	<b>↔MG 2.3</b>	<b>Understand that the length of a vertical line segment equals the difference of the <math>y</math>- coordinates.</b>	17			✓	
---	AF 1.0	Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:	18⊕			✓	
1	AF 1.1	Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).	18⊕			✓	
1	AF 1.4	Use and interpret formulas (e.g., area = length x width or $A = lw$ ) to answer questions about quantities and their relationships.	18⊕			✓	
2	<b>↔AF 1.5</b>	<b>Understand that an equation such as <math>y = 3x + 5</math> is a prescription for determining a second number when a first number is given.</b>	18⊕			✓	
---	<b>↔MG 2.0</b>	<b>Students use two-dimensional coordinate grids to represent points and graph lines and simple figures:</b>	18⊕			✓	
2	<b>↔MG 2.1</b>	<b>Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation <math>y = 3x</math> and connect them by using a straight line).</b>	18⊕			✓	

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---	SDAP 1.0	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	18⊕			✓	
---	MG 3.0	Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems:	19			✓	
1/3**	MG 3.3	Identify congruent figures.	19			✓	
1/3**	MG 3.4	Identify figures that have bilateral and rotational symmetry.	19			✓	
1/3**	MG 3.5	Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90°, 180°, 270°, and 360° are associated, respectively, with 1/4, 1/2, 3/4, and full turns.	19			✓	
---	SDAP 1.0	Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:	20			✓	
---	SDAP 2.0	Students make predictions for simple probability situations:	20			✓	
2/3**	SDAP 2.1	Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).	20			✓	
2/3**	SDAP 2.2	Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; 3/4).	20			✓	

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