McGraw Hill Education

Academic Standards Mathematics Grade 3

Indiana Academic Standards

Indiana

Everyday Mathematics

Volume 1

Teacher's Lesson Guide

The University of Chicago School Mathematics Project

Grade 3

Everyday Mathematics
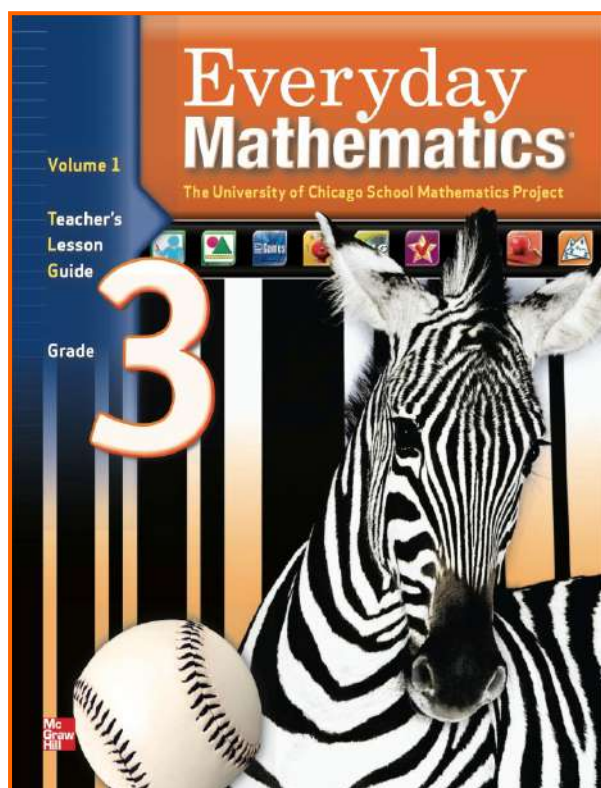
© 2012

STANDARDS	UNIT/LESSON REFERENCES

MATHEMATICS: GRADE 3

The Mathematics standards for grade 3 are supplemented by the Process Standards for Mathematics.

The Mathematics standards for grade 3 are made up of 5 strands: Number Sense; Computation; Algebraic Thinking; Geometry; Measurement; and Data Analysis. The skills listed in each strand indicate what students in grade 3 should know and be able to do in Mathematics.

NUMBER SENSE

3.NS.1: Read and write whole numbers up to 10,000. Use words, models, standard form and expanded form to represent and show equivalent forms of whole numbers up to 10,000.	**Unit/Lessons** 1•6, 5•2

STANDARDS	UNIT/LESSON REFERENCES
3.NS.2: Compare two whole numbers up to 10,000 using >, =, and < symbols.	**Unit/Lessons** 5•2
3.NS.3: Understand a fraction, 1/b, as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction, a/b, as the quantity formed by *a* parts of size 1/b. [*In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8.*]	**Unit/Lessons** 8•1, 8•3
3.NS.4: Represent a fraction, 1/b, on a number line by defining the interval from 0 to 1 as the whole, and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line.	**Unit/Lessons** 3•2, 8•4, 8•5
3.NS.5: Represent a fraction, a/b, on a number line by marking off lengths 1/b from 0. Recognize that the resulting interval has size a/b, and that its endpoint locates the number a/b on the number line.	**Unit/Lessons** 3•2, 8•4, 8•5
3.NS.6: Understand two fractions as equivalent (equal) if they are the same size, based on the same whole or the same point on a number line.	**Unit/Lessons** 3•2, 8•5
3.NS.7: Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent (e.g., by using a visual fraction model).	**Unit/Lessons** 3•2, 8•5
3.NS.8: Compare two fractions with the same numerator or the same denominator by reasoning about their size based on the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual fraction model).	**Unit/Lessons** 8•5, 8•6
3.NS.9: Use place value understanding to round 2- and 3-digit whole numbers to the nearest 10 or 100.	**Unit/Lessons** 2•7
COMPUTATION	
3.C.1: Add and subtract whole numbers fluently within 1000.	**Unit/Lessons** 1•8, 2•1, 2•2
3.C.2: Represent the concept of multiplication of whole numbers with the following models: equal-sized groups, arrays, area models, and equal "jumps" on a number line. Understand the properties of 0 and 1 in multiplication.	**Unit/Lessons** 3•8, 4•1, 4•2, 4•5, 9•3

STANDARDS	UNIT/LESSON REFERENCES
3.C.3: Represent the concept of division of whole numbers with the following models: partitioning, sharing, and an inverse of multiplication. Understand the properties of 0 and 1 in division.	**Unit/Lessons** 4•4, 9•3
3.C.4: Interpret whole-number quotients of whole numbers (e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each).	**Unit/Lessons** 4•4, 9•8
3.C.5: Multiply and divide within 100 using strategies, such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8), or properties of operations.	**Unit/Lessons** 4•6, 4•8, 9•1, 9•6
3.C.6: Demonstrate fluency with multiplication facts and corresponding division facts of 0 to 10.	**Unit/Lessons** 4•5, 4•7, 4•8, 6•2
ALGEBRAIC THINKING	
3.AT.1: Solve real-world problems involving addition and subtraction of whole numbers within 1000 (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	**Unit/Lessons** 2•2, 2•5, 2•6
3.AT.2: Solve real-world problems involving whole number multiplication and division within 100 in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	**Unit/Lessons** 4•5, 4•6, 7•4, 7•6, 9•6, 9•7
3.AT.3: Solve two-step real-world problems using the four operations of addition, subtraction, multiplication and division (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	This standard falls outside the scope of *Everyday Mathematics* Grade 3 © 2012.
3.AT.4: Interpret a multiplication equation as equal groups (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each). Represent verbal statements of equal groups as multiplication equations.	**Unit/Lessons** 4•1, 4•3, 4•4
3.AT.5: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	**Unit/Lessons** 4•6, 4•8, 7•8

STANDARDS	UNIT/LESSON REFERENCES
3.AT.6: Create, extend, and give an appropriate rule for number patterns using multiplication within 1000.	**Unit/Lessons** 7•1, 7•8, 9•1
GEOMETRY	
3.G.1: Identify and describe the following: cube, sphere, prism, pyramid, cone, and cylinder.	**Unit/Lessons** 6•11, 6•12
3.G.2: Understand that shapes (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize and draw rhombuses, rectangles, and squares as examples of quadrilaterals. Recognize and draw examples of quadrilaterals that do not belong to any of these subcategories.	**Unit/Lessons** 6•5, 6•6
3.G.3: Identify, describe and draw points, lines and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use these terms when describing two-dimensional shapes.	**Unit/Lessons** 6•1, 6•6, 6•11
3.G.4: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (1/2, 1/3, 1/4, 1/6, 1/8).	**Unit/Lessons** 3•7, 8•1, 8•3
MEASUREMENT	
3.M.1: Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step real-world problems involving masses or volumes that are given in the same units (e.g., by using drawings, such as a beaker with a measurement scale, to represent the problem).	**Unit/Lessons** 10•2, 10•3, 10•4, 10•5
3.M.2: Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.	**Unit/Lessons** 3•2, 3•3, 10•1, 10•3, 10•4
3.M.3: Tell and write time to the nearest minute from analog clocks, using a.m. and p.m., and measure time intervals in minutes. Solve real-world problems involving addition and subtraction of time intervals in minutes.	**Unit/Lessons** 1•4, 1•13

STANDARDS	UNIT/LESSON REFERENCES
3.M.4: Find the value of any collection of coins and bills. Write amounts less than a dollar using the ¢ symbol and write larger amounts using the $ symbol in the form of dollars and cents (e.g., $4.59). Solve real-world problems to determine whether there is enough money to make a purchase.	**Unit/Lessons** 1•10
3.M.5: Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.	**Unit/Lessons** 3•6, 3•7, 3•8, 4•2, 9•3
3.M.6: Multiply side lengths to find areas of rectangles with whole-number side lengths to solve real-world problems and other mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	**Unit/Lessons** 3•7, 3•8, 9•3
3.M.7: Find perimeters of polygons given the side lengths or by finding an unknown side length.	**Unit/Lessons** 3•4, 3•6, 6•4, 6•5, 6•6
DATA ANALYSIS	
3.DA.1: Create scaled picture graphs, scaled bar graphs, and frequency tables to represent a data set—including data collected through observations, surveys, and experiments—with several categories. Solve one- and two-step "how many more" and "how many less" problems regarding the data and make predictions based on the data.	**Unit/Lessons** 1•4, 1•5, 10•9, 11•1
3.DA.2: Generate measurement data by measuring lengths with rulers to the nearest quarter of an inch. Display the data by making a line plot, where the horizontal scale is marked off in appropriate units, such as whole numbers, halves, or quarters.	**Unit/Lessons** 3•2