

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understand and use number notation and place value					
<p>Read and write numbers to 1,000,000; relate them to the quantities they represent; compare and order</p>	<p>N.ME.04.01 (Extended Core)</p>	<p>Heath TM pgs 18,,19, 20,21,24,25 General Whole Numbers Summary: 78 lessons on number and numeration that can be downloaded and used in the classroom for intermediate grades. Ideal website for math and science subject areas.</p>	<p>Greater than Less than Comparison Expanded form Standard form Rounded number Million</p>	<p>Comparing Fractions Summary: Shows how to compare two fractions for whatever fractions are entered. Convert Words to Written Decimals Summary: These problems test the student's ability to write a decimal from given words. Source: edHelper</p>	<p><u>Hands on Math</u> pg 16 "Too High Too Low" <u>Hands on Math</u> pg 20 Comparison Shopping Summary: An Applied Math lesson to teach students the benefits of comparison shopping</p>
<p>Compose and decompose numbers using place value to 1,000,000's, e.g., 25,068 is 2 ten 0 thousands, 5 thousands, hundreds, 6 tens and 8 ones.</p>	<p>N.ME.04.02 (Extended Core)</p>	<p>Heath TM pgs 10,11 Abacus in Various Number Systems Summary: The history of the Abacus.</p>	<p>Compose Decompose Expanded notation Standard form Written form</p>	<p>Addition Patterns Summary: Students are given several patters that involve addition problems. Students are asked to identify the number that needs to be added to a given number to equal a given solution. They are then asked to determine the pattern of addition.</p>	<p>Goldseal "Math Riddles" http://pdf.edgate.com/cm/lessons/gold/Math_Riddles_K-4_ENG.pdf Gold Seal: Shake, Add, and Subtract! Summary: This lesson helps reinforce addition and subtraction skills for students.</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understand and use number notation and place value					
<p>Understand the magnitude of numbers up to 1,000,000; recognize the place value's of numbers, and the relationship of each place value to the place to its right, e.g., 1,000 is 10 hundreds.</p>	<p>N.ME.04.03 (Extended Core)</p>	<p>Abacus Source: Learning Network Abacus in Various Number Systems Source: Alexander Bogomolny All About Place Values Source: J. Banfill Arithmetic Resources Source: Math Archives Ask Dr. Math: About Numbers Source: Dr. Math Archives Ask Dr. Math: Place Value Source: Dr. Math Archives First Place Value System Source: Bebob BYTES Back</p>		<p>Assessment Guidelines: Place Value Assessment Source: Kari, Essary, Rummelsburg rev.2001 Assessment Guidelines: What is the Most Effective Way to Teach Students Place Value? Source: Scimast Quiz: Place Value Source: AAA Math Test Prep: Estimation to the Millions Source: Ed Fayette Test Prep: Place Value to the Millions Source: Sandy Harrison</p>	<p>ArtsEdge: Crafty Idea Source: MarcoPolo / Kennedy Center NCTM Illuminations: Count on Mathematics for Number Sense Source: MarcoPolo / NCTM Illuminations Addition Relay Source: Cindy Jacobs Alexander, Who Used to Be Rich Last Sunday Source: The U. S. Mint</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Use factors and multiples					
Find all factors of a whole number up to 50, and list factor pairs.	N.ME.04.04 (Extended Core)	Whole Numbers and Their Basic Properties Source: Math League		Fractions - Reducing Source: WebMath Number and Integers - Factors Source: WebMath Number and Integers - Greatest Common Factor Source: WebMath Number and Integers - Least Common Multiple Source: WebMath Quiz: Adding and Subtracting with Zero Source: Ed Fayette	
List the first ten multiples of a given one-digit whole number; determine if a whole number is a multiple of a given one digit whole number and if a one digit number is a factor of a given whole number.	N.ME.04.05 (Extended Core)	Heath TM pg 110,111, 132, 133, 134,135,136, 146,147 Whole Numbers and Their Basic Properties Summary: This resource provides explanations and examples for a variety of whole number topics, divisibility rules and properties.	Multiple Digit Factor	Fractions – Reducing Summary: This assessment is an on-line program to reduce fractions to lowest terms by finding the Greatest Common Factor of the numerator and denominator.	Blockheads http://www.beaconlearningcenter.com/search/details.asp?item=2687 It's Great to be More Summary: Comparing whole and fractional numbers using <, >, or =, with manipulatives and drawings. Beacon Learning

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Use factors and multiples					
<p>Know that some numbers including 2,3,5,7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.</p>	<p>N.MR.04.06 (Extended Core)</p>	<p>Heath TM pgs 146,147 Understanding Problems Summary: 139 lessons that can be downloaded to be used instantly in the classroom for intermediate grades. Ideal for science and math subject areas.</p>	<p>Factor Prime number</p>	<p>Common Factors and Greatest Common Factor Summary: Students are asked to identify the factors of each set of numbers given and the greatest common factor of the two numbers.</p>	<p>Hands on Math pg 19 “Prime Numbers” Maximum Product Summary: This lesson leads you to investigate patterns that emerge from splitting numbers and predicting the greatest product, least product, and specified target numbers.</p>
<p>Solve problems about factors and multiples, e.g. since $100 = 4 \times 25$, and $200 = 2 \times 100$, then $200 = 2 \times 4 \times 25 = 8 \times 25$</p>	<p>N.MR. 04.07 (Core)</p>		<p>Multiple Product</p>	<p>Solve problems about factors and multiples, e.g. since $100 = 4 \times 25$, and $200 = 2 \times 100$, then $200 = 2 \times 4 \times 25 = 8 \times 25$</p>	<p>N.MR. 04.07 (Core)</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Add and subtract whole numbers					
Add and subtract whole numbers fluidly	N.FL.04.08 (Extended Core)	Heath TM pgs 52,53,54,55,60,61,64,65, 66,67	Grouping property Order property Zero property	Addition and Multiplication Relationships Summary: These problems test student understanding of the relationship between multiplication and addition. Students are given several long addition problems and are asked to identify the equivalent multiplication problem.	
Multiply and divide whole numbers					
Multiply two digit numbers by 2,3,4,and 5, using the distributive property, e.g. $21 \times 3 = (1 \times 3) + (20 \times 3) = 60 + 3 = 63$	N.ME.04.09 (Extended Core)	Heath TM pgs 136 Whole Numbers and Their Basic Properties Source: Math League	Distributive property	Associative Property Summary: Students are given a series of multiplication problems with parenthesis and asked to find their solution. They are then given problems without parenthesis and asked to show two ways the equations could be grouped using parenthesis.	

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Multiply and divide whole numbers					
<p>Multiply fluently any whole number by a one digit number, and a three digit number by a two digit number, for a two digit by one digit multiplication, use distributive property to develop meaning for the algorithm.</p>	<p>N.FL.04.10 (Core)</p>	<p>Heath pg 108 192 194</p> <p>Whole Numbers and Their Basic Properties Summary: This resource provides explanations and examples for a variety of whole number topics, divisibility rules and properties.</p>	<p>Digit Algorithm Distributive property</p>	<p>Addition and Multiplication Relationships Summary: These problems test student understanding of the relationship between multiplication and addition. Students are given several long addition problems and are asked to identify the equivalent multiplication problem. Source: Oswego City School District</p>	<p>The Facts, Gimme Just the Facts! Summary: Knowing all multiplication facts will help in the learning of subsequent skills in hard multiplication, division, fractions, etc.</p>
<p>Divide numbers up to four digits by one digit numbers and by 10.</p>	<p>N.FL.04.11 (Core)</p>	<p>Heath pg 112 114 130 128 140</p>	<p>Digit</p>	<p>Division Sentences Summary: Students use their knowledge of divisors, dividends, and quotients to complete these problems. They must solve for the missing value, answer word problems, and complete division problems with remainders to complete this test.</p>	

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Multiply and divide whole numbers					
<p>Find unknowns in equations such as $A \div 10 = 25$; $125 \div B = 25$</p>	<p>N.MR.04.12 (Future Core)</p>	<p>Apples Summary: Across the curriculum unit using apples to apply math concepts in a variety of ways.</p>	<p>Unknowns Equations Dividend</p>	<p>Colorado CSAP 2001 Grade 5 Released Item: Mathematics-Computation and Reasoning Summary: This pdf document contains the released items for mathematics. There is a total of 19 multiple choice and constructed response questions. The answer is given for each question.</p>	<p>NCTM Illuminations: Competing Coasters Summary: In this lesson, students look at attributes that vary from roller coaster to coaster, attributes that make each scream machine uniquely thrilling. Students use a website to view photos of roller coasters from around the country. Based on the pictures, students predict which coaster is faster, which is higher, which goes further, and which takes longer. They look up data on another website to check their predictions. Finally, students evaluate their estimates of speed, height, etc., to see whether their estimation skills improve with experience. MarcoPolo / NCTM Illuminations</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Multiply and divide whole numbers					
Use the relationship between multiplication and division to simplify computations and check results, e.g. 6840 divided by 20 = (6840 divided by 10) divided by 2 = 684 divided by 2 = 342.	N.MR.04.13 (Extended Core)	Megamaths Tables Summary: This interactive resource assists students in learning and/or practicing the multiplication facts. Patterns are emphasized through different games and activities. General guidelines are presented such as, 'There are no odd numbers in the six times table.' Printable worksheets are available so that the activity can be used for an entire class.	Fact family Associative property Parenthesis Equation	Associative Property Summary: Students are given a series of multiplication problems with parenthesis and asked to find their solution. They are then given problems without parenthesis and asked to show two ways the equations could be grouped using parenthesis.	Everyday Math pg 366 “A Multiple Strategy for Division”
Solve applied problems involving whole number multiplication and division.	N.FL.04.14 (Future Core)		Product Quotient Array Dividend Divisor Multiple Common multiple Common factor	Checking Answers Summary: Students are given several addition, subtraction, multiplication, and division problems with their solutions. They then must perform the reverse operation in order to verify the answer given.	Problem Solving and the Sports Page Source: Carylon Weldon - Educator's Reference Desk

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Read, interpret and compare decimal fractions					
Read and interpret decimals up to two decimal places, relate to money and place value decomposition.	N.ME.04.15 (Core)	Heath pg 336, 337, 338, 339, 342	Tenth Hundredth Least Greatest		Gold Seal: Pi Day Activity Source: ICLE: Judith P. Wood
Know that terminating decimals represents fractions whose denominators are 10, 10 x 10, 10 x 10 x 10, etc., e.g. powers of 10	N.ME.04.16 (Future Core)	All About Fractions Summary: These pages are all about the operations on fractions covered in K8 math courses. Each page has an explanation, interactive practice and challenge games about fractions. Fresh Baked Fractions Summary: Online game where kids work with fractions.	Denominator Numerator Decimal	Addition and Subtraction of Decimals Summary: These problems provide a good test to see if students understand the basic concepts of addition and subtraction of decimals. Students must be able to line up the decimals because these problems are not in column form.	Gold Seal: Jelly Beans and Fractions Summary: Introductory or review of fractions using jelly beans. Source: ICLE: Marsha Kucker

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Read, interpret and compare decimal fractions					
Locate tenths and hundredths on a on a number line.	N.ME.04.17 (Extended Core)	Heath TM pgs 343 Fractions Summary: This site gives information on a variety of topics regarding fractions, including converting and comparing fractions.	Decimal Tenth Hundredth Point	Addition and Subtraction of Decimals Summary: These problems provide a good test to see if students understand the basic concepts of addition and subtraction of decimals. Students must be able to line up the decimals because these problems are not in column form.	Arithmetic Artistry Summary: Students will create a classroom quilt that illustrates the many unique ways that children use math skills. Note: You must register (free) to access the Associated Files. Beacon Learning
Read, write, interpret and compare decimal places; relate to money and place value decomposition.	N.ME.04.18 (Extended Core)	Heath pg 340, 344, 346 Arithmetic Resources Summary: Math Archives page of web resources for arithmetic.	Point	Addition and Subtraction of Decimals Summary: These problems provide a good test to see if students understand the basic concepts of addition and subtraction of decimals. Students must be able to line up the decimals because these problems are not in column form.	Gold Seal: Roman Numerals Summary: This activity focuses on students learning about where Roman numerals are used today and their history.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Read, interpret and compare decimal fractions					
Write tenths and hundredths in decimal and fraction forms, and know the decimal equivalents for halves and fourths	N.MR.04.19 (Core)	Heath TM pg 339,340, 341,342,343,344,345,346 347 Ask Dr. Math: Place Value Summary: Interesting answers and/or good places to begin browsing about place value, rounding and numeration.	Decimal Tenth Hundredth Point Half Fourth	Coins, Money, and Fractions Summary: Students are given a chart with three equal values, one fraction, a group of coins, and a written money amount. Students must fill in the missing value in each chart. This exercise is a good test to see if students understand money values and the relation between fractions and money amounts.	Balanced Equations Summary: If your students have a hard time understanding variables, this lesson is for you. It is wonderful for the visual student. In the lesson students will use weights and a balance scale to show how the sides of an equation are equal. Note: You must register (free) to access the Associated Files. Beacon Learning
Understand fractions					
Understand fractions as parts of a set of objects	N.ME.04.20 (Extended Core)	Heath TM pgs 274,275,278,279 All About Fractions Summary: These pages are all about the operations on fractions covered in K8 math courses. Each page has an explanation, interactive practice and challenge games about fractions.	Numerator Denominator Equivalent fractions Simplest form Mixed number	Comparing Fractions Summary: Shows how to compare two fractions for whatever fractions are entered.	Hands on Math pg 70 “Parts of a Whole” Hands on Math pg 71 “Finish It”

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understand fractions					
Explain why equivalent fractions are equal, using models, such as fraction strips on a number line for fractions with denominators of 12 or less, or equal to 100.	N.MR.04.21 (Core)		Numerator Denominator Equivalent fractions Simplest form Mixed number	Counting Perimeter, Area, and Volume Summary: Students are given shapes divided into squares. From these shapes they must count the squares to find perimeter, area, or volume. This tests the student's understanding of what perimeter, area, and volume measure.	Hands on Math pg 74-75 "Fraction Strips Activities"
Locate and compare fractions on the number line, including improper fractions and mixed numbers with denominators of 12 or less.	N.MR.04.22 (Core)	Heath Tm pg 274H "Alternate Approach"	Numerator Denominator Equivalent fractions Simplest form Mixed number	Changing Improper to Mixed Fractions Summary: Students are given a list of improper fractions and must convert them to mixed numbers in order to select the correct answer.	Hands on Math pg 77 "Ordering Fractions" Use a ruler as a number line

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understand fractions					
Understand the relationships among halves, fourths and eighths, and among thirds, sixths and twelfths	N.MR.04.23 (Extended Core)	Heath TM Pg 274I NCTM Illuminations: Communicating about Mathematics Using Games Summary: Mathematical games can foster mathematical communication as students explain and justify their moves to one another. This interactive version of a game can be used to support students' learning about fractions. MarcoPolo / NCTM Illuminations	Numerator Denominator Equivalent fractions Simplest form Mixed number	Alaska Grade 3 Benchmark Test: Mathematics-General Summary: The questions for the mathematics sections can be found on pages 5-16 of the pdf document. There are 18 multiple choice and short answer questions. The short answer questions require students to explain or show how they found their answer.	All Fractions Are Created Equal Summary: This lesson is introducing students to equivalent fractions using concrete materials. Note: You must register (free) to access the Associated Files. Beacon Learning
Know that fractions of the form where m/n is greater than n, are greater than 1 and are called improper fractions, locate improper fractions on the number line, express as mixed numbers	N.MR.04.24 (Extended Core)	Heath pg 266	Mixed number Improper fraction Numerator Denominator Equivalent fractions Simplest form Mixed number	Changing Improper to Mixed Fractions Summary: Students are given a list of improper fractions and must convert them to mixed numbers in order to select the correct answer.	Half of a Half Summary: Students develop a number line and identify common fractions using the denominators 2, 4, and 8. Beacon Learning

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understand fractions					
Write the improper fractions as mixed numbers, and understand that a mixed number represents the number of “wholes”, and a part of the wholes remaining. e.g. $5/4 = 1 \frac{1}{4}$	N.MR.04.25 (Extended Core)	Heath pg 266	Numerator Denominator Equivalent fractions Simplest form Mixed number	Coins, Money, and Fractions Summary: Students are given a chart with three equal values, one fraction, a group of coins, and a written money amount. Students must fill in the missing value in each chart. This exercise is a good test to see if students understand money values and the relation between fractions and money amounts.	Math/Social Studies Activity - The Pony Express Summary: Teaches students the history of the pony express and about weights and percentages. Also asks students to track the route that pony express riders traveled.
Compare and order up to three fractions with denominators 2, 4, and 8, and 3, 6, and 12, including improper fractions and mixed numbers	N.MR.04.26 (Extended Core)	Heath pg 256, 257	Numerator Denominator Equivalent fractions Simplest form Mixed number	Changing Improper to Mixed Fractions Summary: Students are given a list of improper fractions and must convert them to mixed numbers in order to select the correct answer.	

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Add and subtract fractions					
<p>Add and subtract fractions less than 1 with denominators 12 or less and including 100, in cases where the denominators are equal or when one denominator is a multiple of another e.g. $1/12 + 5/12 = 6/12$; $1/6 + 5/12 = 7/12$; $3/10 - 23/100 = 7/100$</p>	<p>N.MR.04.27 (Future Core)</p>	<p>Heath TM pg 274G</p>	<p>Numerator Denominator Equivalent fractions Simplest form Mixed number</p>	<p>Fraction Measurement Summary: This problem requires students to be able to double the size of a fraction (as one would do in a recipe) by either adding or multiplying.</p>	<p>And the Number Is... Summary: Students create their own Mystery Numbers by giving clues about the name, value, and multiples of the digits which comprise the number. Note: You must register (free) to access the Associated Files. Beacon Learning</p>
<p>Solve fraction problems involving sums and differences for fractions where one denominator is a multiple of the other (denominators 2 through 12, and 100)</p>	<p>N.FL.04.28 (Future Core))</p>			<p>State Released Items: Georgia CRCT Grade 4 Released Item 2002: Mathematics- Comprehension and Computation Source: Georgia Department of Education Test Item: Fraction Measurement Source: Oswego City School District Test Prep: Compatible Numbers and Estimation Source: Mary Jane Cowell</p>	<p>Adding and Subtracting Fractions Source: Yunling Zhang</p>

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Add and subtract fractions					
Solve for the unknown in equations such as; $1/8 + x = 5/8$ or $3/4 - y = 1/2$	N.MR.04.29 (Future Core)		Numerator Denominator Equivalent fractions Simplest form Mixed number	Compatible Numbers and Estimation Summary: Students use these mental math skills to make problem solving easier. These problems require students to identify numbers that are easily put together in order to make solving a complex problem more simple. Students also must use the concept of estimation by rounding.	
Multiply fractions by whole numbers					
Multiply fractions by whole numbers, using repeated addition and area or array models	N.MR.04.30 (Future Core)		Numerator Denominator Equivalent fractions Simplest form Mixed number	Colorado CSAP 2001 Grade 5 Released Item: Mathematics- Computation and Reasoning Summary: This pdf document contains the released items for mathematics. There is a total of 19 multiple choice and constructed response questions. The answer is given for each question	And the Number Is... Summary: Students create their own Mystery Numbers by giving clues about the name, value, and multiples of the digits which comprise the number. Note: You must register (free) to access the Associated Files. Beacon Learning

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Add and subtract decimal fractions					
Use mathematical statements to represent problems that use addition and subtraction with up to two digit numbers, solve	N.MR.04.31 (Future Core)			Addition and Subtraction of Decimals Summary: These problems provide a good test to see if students understand the basic concepts of addition and subtraction of decimals. Students must be able to line up the decimals because these problems are not in column form.	Christmas Summary: Students work in pairs to use real life interests to create a wish list from catalogues and sale ads based on a given budget. This lesson gives the students math practice in the areas of addition, subtraction, and estimation with money. Note: You must register (free) to access the Associated Files. Beacon Learning
Add and subtract decimals up to two decimal places	N.FL.04.32 (Future Core)			Addition and Subtraction of Decimals Summary: These problems provide a good test to see if students understand the basic concepts of addition and subtraction of decimals. Students must be able to line up the decimals because these problems are not in column form.	Allowances and Spending Plans Summary: This lesson provides an introduction to allowances for third through sixth graders. Allowances are the first step to understanding written spending plans or budgets.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Multiply and divide decimal fractions					
<p>Multiply and divide decimals up to two decimal places by a one digit whole number where the result is a terminating decimal, e.g. $0.42 \div 3 = 1.4$</p>	<p>N.FL.04.33 (Future Core)</p>			<p>Divide a Decimal by a Decimal Summary: Students must have a good understanding of division of decimals to solve these problems. Many require the addition of zeros and complex division.</p>	<p>Christmas Summary: Students work in pairs to use real life interests to create a wish list from catalogues and sale ads based on a given budget. This lesson gives the students math practice in the areas of addition, subtraction, and estimation with money. Note: You must register (free) to access the Associated Files. Beacon Learning</p>
Estimate					
<p>Estimate the answers to calculations involving addition, subtraction, and multiplication</p>	<p>N.FL.04.34 (Extended Core)</p>	<p>Heath TM pgs 1, 2, 4, 50, 56, 58, 188, 198, 372 Approximately How Difficult? Summary: A list of ideas to practice estimation.</p>	<p>Estimate</p>	<p>Gold Seal: Half Full or Half Empty? Summary: This lesson will give students the concept of what estimation is and basic skills in making estimates.</p>	<p>Gold Seal: Half Full or Half Empty? Summary: This lesson will give students the concept of what estimation is and basic skills in making estimates.</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Estimate					
<p>Know when approximation is appropriate and use it to check the reasonableness of answers; be familiar with common place-value errors in calculation</p>	<p>N.FL.04.35 (Core)</p>	<p>Heath TM pg 362</p>		<p>Comparing Estimation and Actual Answer Summary: Students are given several story problems and asked to first estimate the solution and then mathematically solve the problem for the actual solution. Comparing these two amounts will show how accurately students are able to estimate.</p>	<p>NCTM Illuminations: Mathematics at the Mall Summary: Students participate in an activity in which they develop number sense in and around the shopping mall. There are two activities in this lesson. The first is appropriate for grades 3 - 5 and the second for grades 6 - 8. Both grade-level activities deal with size and space, estimation, measurement, and applications involving percent. MarcoPolo / NCTM Illuminations</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Estimate					
Make appropriate estimations and calculations fluently with whole numbers using mental math strategies	N.FL.04.36 (Not Assessed at State Level)	Heath TM pgs 2, 3, 4, 5, 6, 7 Addition Summary: 91 lessons that can be downloaded and used in the classroom for intermediate grades. Ideal website for math and science subject areas.	Mental Math Basic fact	Comparing Estimation and Actual Answer Summary: Students are given several story problems and asked to first estimate the solution and then mathematically solve the problem for the actual solution. Comparing these two amounts will show how accurately students are able to estimate.	Addition and Subtraction Game Summary: An Educator's Reference Desk lesson plan. A group activity that provides review and drill in the format of a game for learning facts in subtraction and addition.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Number and Operations

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Problem solving					
Solve applied problems using the basic arithmetic operations for appropriate fractions, decimals, and whole numbers	N.MR.04.37 (Core)	Heath TM pgs 34, 258, 68, 90, 206, 226, 240, 258, 268, 290, 292, 294, 348, 360, 408 Visual Fractions Summary: This interactive resource uses number lines and circles to teach all about fractions. Lessons on identifying, comparing, finding equivalents as well as performing the four operations with fractions are presented. Practice is provided along with each lesson, and there are games for entertainment. Source: Richard E. Rand	Strategy	Checking Answers Summary: Students are given several addition, subtraction, multiplication, and division problems with their solutions. They then must perform the reverse operation in order to verify the answer given.	Elementary: Fractions, Decimals, Percents Summary: Students develop an understanding of fractions as parts of unit wholes, parts of a collection, locations on the number line, and as divisions of whole numbers. They learn to recognize and generate equivalent forms of commonly used fractions, decimals, and percents.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Measurement

Essential Outcomes/ Standards	Benchmarks	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Measure using common tools and appropriate units					
Measure using common tools and select appropriate units of measure	M.UN.04.01 (Core)	Heath pg 302, 304, 308, 312, 314a, 314, 315, 316, 318, 320, 322 Animal Olympics Summary: If animals were in the Olympics, who would win? Topic(s): Distance and speed statistics, estimation and graphing	Inch, half inch, quarter inch, foot, yard, mile, equivalent measures, perimeter, fluid ounce, cup, pint, quart, gallon, ounce, pound, ton, centimeter, millimeter, decimeter, meter, kilometer, liter, milliliter, gram, kilogram, degrees Fahrenheit, degrees Celsius, balance, clock ruler, scale, thermometer, yardstick	Comparing Estimated and Real Measurements Summary: Students are asked to cut a piece of string that corresponds to their height. They then must use this string to estimate and actually measure how many times it will go around their head, waist, wrist, ankle and pinky. They are also shown pictures of other people and asked to estimate their measurements using the same technique.	Gold Seal: Class Signs Summary: By creating a design, students learn how to center and align using rulers.
Give answers to a reasonable degree of precision in the context of a given problem	M.PS.04.02 (Core)	Heath pg. 323 Animal Olympics Summary: If animals were in the Olympics, who would win? Topic(s): Distance and speed statistics, estimation and graphing		Comparing Estimated and Real Measurements Summary: Students are asked to cut a piece of string that corresponds to their height. They then must use this string to estimate and actually measure how many times it will go around their head, waist, wrist, ankle and pinky. They are also shown pictures of other people and asked to estimate their measurements using the same technique.	Gold Seal: I'll Blow Your House Down Summary: In this task, students will build a model house for the three little pigs. They will work in teams and write a story at the conclusion of this project.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Measurement

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Measure using common tools and appropriate units					
Measure and compare integer temperatures in degrees	M.UN.04.03 (Core)	Heath pgs 324,-325 Measurements Converter Summary: Good resource to use for measurement conversion.	Decimal Tenth Hundredth Point	Converting Metric Units Summary: These story problems require students to do conversions involving units of grams and liters. Students must use their knowledge of conversion amounts to complete these problems.	Centimeter Slinkies Summary: This activity is a fun way to introduce measuring in centimeters. The student estimates the length of a whole color-segmented, candy gummy worm, bites off a segment, and records the new measurement of the worm. Note: You must register (free) to access the Associated Files. Beacon Learning
Measure surface area of cubes and rectangular prisms by covering and counting areas of the faces	M.TE.04.04 (Not Assessed at State Level)	Heath TM pgs175, 148G	Face Area Rectangular prism Cube	Massachusetts MCAS Grade 4 Released Item: Mathematics- Computation and Reasoning Summary: The released items for mathematics are on pages 4-23 of the pdf document. This test is divided into two sections and contains a total of 39 multiple choice and open response questions. Calculators are not allowed on any portion of this test.	

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Measurement

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Convert measurement units					
<p>Carry out the following conversions from one unit of measure to a larger or smaller unit of measure; meters to centimeters, kilograms to grams, liters to milliliters, hour to minutes, minutes to seconds, years to months, weeks to days, Feet to inches, ounces to pounds (using numbers that involve only simple calculations).</p>	<p>M.TE.04.05 (Core)</p>	<p>Common Weights and Measures Summary: Table of conversions.</p>	<p>Inch, half inch, quarter inch, foot, yard, mile, equivalent measures, perimeter, fluid ounce, cup, pint, quart, gallon, ounce, pound, ton, centimeter, millimeter, decimeter, meter, kilometer, liter, milliliter, gram, kilogram, degrees Fahrenheit, degrees Celsius, balance, clock ruler, scale, thermometer, yardstick,</p>	<p>Converting English Units of Measurement Summary: These problems require students to know conversions of weight, length, time and liquid measurements to find the English conversion solutions.</p>	<p>Assorted Sports (by Area) Summary: You have played games all your life. You know some playing fields are larger than others. (Imagine playing football on a tennis court) You will discover the dimensions of the different sports and compute the area of the playing fields. You need to know Area equals length times width, how to create scatter plots, and how to convert yards and meters to feet.</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Measurement

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Use perimeter and area formulas					
<p>Know and understand the formulas for perimeter and area of a square and a rectangle; calculate the perimeters and areas of these shapes using the formulas</p>	<p>M.TE.04.06 (Core)</p>	<p>Heath TM 300J, 306-307, 317, 148G, 148I, 170-171, 195, 385, 394-395</p>	<p>Length Width Formula Perimeter Area</p>	<p>Area of Geometric Shapes Summary: Students must use their knowledge of the area formula in order to solve these problems. They must know how to find the area of a rectangle, triangle, and square to complete the worksheet.</p>	<p>Everyday Math pg 616,621 Using Tangrams Summary: Students make their own tangrams and use them to identify attributes of triangles such as isosceles, right, congruent, and similar. They practice using appropriate geometric vocabulary when describing the shapes they have made. Students also use the tangrams to explore the characteristics of different shapes.</p>
<p>Find one dimension of a rectangle given the other dimension and its perimeter and area</p>	<p>M.TE.04.07 (Core)</p>	<p>BasketMath Interactive Summary: Science Academy Software's BasketMath Interactive provides a wide variety of animated math tests helping students in grades 4-10 to practice online their math skills. Tests: whole numbers, rounding numbers, decimals, and many others.</p>	<p>Length Width Formula Perimeter Area</p>	<p>Area and Perimeter Summary: Students are shown three different shapes located in a grid. From these pictures they must determine which shape has the largest and smallest area and perimeter.</p>	<p>Gold Seal: Steps Summary: In this task, students learn how to set up the dimensions of different sports playing fields by measuring distances with their steps.</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Measurement

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Use perimeter and area formulas					
Find the side of a square given its perimeter or area	M.TE.04.08 (Extended Core)	Common Weights and Measures Summary: Table of conversions.	Length Width Formula Perimeter Area	Area of Geometric Shapes Summary: Students must use their knowledge of the area formula in order to solve these problems. They must know how to find the area of a rectangle, triangle, and square to complete the worksheet.	Gold Seal: Climbing Animals Summary: Students construct an animal that will climb to the ceiling.
Solve contextual problems about perimeter and area of squares and rectangles in compound shapes	M.PS.04.09 (Future Core)	BasketMath Interactive Summary: Science Academy Software's BasketMath Interactive provides a wide variety of animated math tests helping students in grades 4-10 to practice online their math skills. Tests: whole numbers, rounding numbers, decimals, and many others.	Length Width Formula Perimeter Area	Boxes in Space Summary: Students find perimeter, area, and volume.	Area and Volume Summary: Students construct models of three dimensional shapes of varying sizes and volumes.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Measurement

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understanding right angles					
Identify right angles and compare angles to right angles	MTE.04.10 (Extended Core)	Heath TM pgs 154-155, General Geometry Summary: 46 lessons on general geometry that can be adapted to the intermediate grades. Ideal website for science and math subject areas.	Right angle Obtuse angle Acute angle Ninety degrees	Massachusetts MCAS Grade 4 Released Item: Mathematics- Computation and Reasoning Summary: The released items for mathematics are on pages 4-23 of the pdf document. This test is divided into two sections and contains a total of 39 multiple choice and open response questions. Calculators are not allowed on any portion of this test.	Hey! What Is Your Angle? Summary: Students create and classify straight, right, acute and obtuse angles using pretzel sticks. Beacon Learning
Problem solving					
Solve contextual problems about surface area	M.PS.04.11 (Future Core)			My Job at the Toy Factory Summary: Students will draw three-dimensional figures in Task 1. In Tasks 2 and 3, faces, edges, and corners are assessed. Task 4 asks the students to draw nets.	

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Geometry

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Understand perpendicular, parallel, and intersecting lines					
Identify and draw perpendicular, parallel, and intersecting lines using a ruler and a tool or object with a square (90 degree) corner	G.GS.04.01 (Extended Core)	Heath TM page 165	Perpendicular Parallel Intersecting	<p>NCTM Illuminations: Geometry in the World of Art Lesson 07: Looking Back and Moving Forward Source: MarcoPolo / NCTM Illuminations</p> <p>Assessment Guidelines: TEKS Mathematics Assessment Connections for Grade 4: Geometry Source: Texas Education Agency</p> <p>State Released Items: Idaho Direct Math Assessment Grade 4 Released Item: Mathematics-Computation and Reasoning Source: Idaho Direct Mathematics Assessment</p> <p>State Released Items: Math Comprehension Source: TAKS 2003</p>	<p>ArtsEdge: Freedom Quilts Source: MarcoPolo / Kennedy Center</p> <p>Gold Seal: Bike Shop Source: ICLE: Doris Quick</p> <p>NCTM Illuminations: Geometry in the World of Art Lesson 04: Who Was Wassily Kandinsky? Source: MarcoPolo / NCTM</p> <p>NCTM Illuminations: Geometry in the World of Art Lesson 06: Mirroring Kandinsky Source: MarcoPolo / NCTM Illuminations</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Geometry

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Identify basic geometric shapes and their components, and solve problems					
<p>Identify basic geometric shapes including isosceles, equilateral and right triangles, and use their properties to solve problems</p>	<p>G.GS.04.02 (Core)</p>	<p>Dave's Math Tables Summary: What is the volume of a sphere? The integral of tan(x)? Many formulas from algebra, geometry, trigonometry, calculus, etc. are contained here.</p>	<p>Isosceles Equilateral Right triangle</p>	<p>Changing Basic Shapes Summary: Students must read the word problems carefully and analyze the combined, subdivided, or changed shape to solve each problem. They must identify the name and dimensions of the new shape created.</p>	<p>NCTM Illuminations: Exploring Triangles Summary: Each investigation in geometry begins with an open-ended question that challenges students to become actively involved in mathematical experiments, ideas, discussions, manipulative materials, tools, and techniques. After students have completed the geometrical part of the activity, they are required to communicate the mathematics they have learned to a variety of audiences. MarcoPolo / NCTM Illuminations Source: MarcoPolo NCTM Illuminations</p>

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Geometry

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Identify basic geometric shapes and their components, and solve problems					
<p>Identify and count the faces, edges, and vertices of basic three-dimensional geometric solids including cube, rectangular prism and pyramids; describe the shape of their faces</p>	<p>G.SR.04.03 (Core)</p>	<p>Heath TM pgs 175, 154-55, 165 Free Standing Structure Source: Leslie Gonzales, WCI; White City, Oregon General Geometry Source: Explorer Geometry Junkyard Source: David Eppstein Numeracy Source: Educate.org.uk Platonic Solids Source: Janine Stereograms : A Cool Application of Geometry Source: David Eger Visual Math: M.C. Escher Source: Mathacademy</p>	<p>Face Edge Vertices Cube Three-dimensional Rectangular prism Pyramid</p>	<p>NCTM Illuminations: Geometry in the World of Art Lesson 07: Looking Back and Moving Forward Source: MarcoPolo / NCTM Illuminations Assessment Guidelines: Exploring Properties of Rectangles and Parallelograms Using Dynamic Software Source: National Council of Teachers of Mathematics Assessment Guidelines: TEKS Mathematics Assessment Connections for Grade 4: Geometry Source: Texas Education Agency Test Prep: Identifying a Shape or Figure Source: Ed Fayette</p>	

Course Name: 4th Grade Mathematics

STRAND: Geometry

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Recognize symmetry and transformations					
Recognize plane figures that have line symmetry	G.TR.04.04 (Extended Core)	Heath TM pgs 148F,156-57, 160,161	Symmetry Half turn Line of Slide	Changing Basic Shapes Summary: Students must read the word problems carefully and analyze the combined, subdivided, or changed shape to solve each problem. They must identify the name and dimensions of the new shape created.	Are We the Same? Summary: Students identify and make symmetrical figures. Beacon Learning
Recognize rigid motion transformation (flips, slides, turns) of a two dimensional object	G.TR.04.05 (Core)	Heath TM pgs 148F, 150-151,152-153, 154-155, 160-161 About Symmetry and Pattern Summary: A page describing pattern and symmetry.	Flip image Mirror image slide Slide arrow Slide symmetry Turn Half turn Quarter turn Three-quarter turn Turn center Turn image	Building Castles Summary: Students draw a castle using simple geometric shapes, and count and measure those shapes.	Gold Seal: Quilt Design Summary: In this task, students will utilize transformational geometry, measurement, and area when designing a quilt.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Data and Probability

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Represent and solve problems for given data					
Construct tables and bar graphs from given data	D.RE.04.01 (Core)	Heath TM pgs 28-29, 74F, 74J, 78-79, 95, 105 NCTM Illuminations: Collecting, Representing, and Interpreting Data Using Spreadsheets and Graphing Software: Collecting and Examining Weather Data Summary: Spreadsheets and graphing software are tools for organizing, representing, and comparing data. This lesson from Illuminations illustrates how weather data can be collected and examined using these tools. Collecting and Examining Weather Data, students organize and then examine data that has been collected over a period of time in a spreadsheet. In the second part, Representing and Interpreting Data, students use the graphing functions of a spreadsheet to help them interpret data. MarcoPolo / NCTM Illuminations	Data Variable	Alaska Grade 3 Benchmark Test: Mathematics-General Summary: The questions for the mathematics sections can be found on pages 5-16 of the pdf document. There are 18 multiple choice and short answer questions. The short answer questions require students to explain or show how they found their answer.	Gold Seal: Graphic Speeches Summary: Working in groups, students will gather information from a lower grade level class and use the data in a graph.

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Data and Probability

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Represent and solve problems for given data					
Order a given set of data, find the median, and specify the range of values	D.RE.04.02 (Core)	Heath TM 298-299	Data Range Median Value	Colorado CSAP 2001 Grade 5 Released Item: Mathematics- Computation and Reasoning Summary: This pdf document contains the released items for mathematics. There is a total of 19 multiple choice and constructed response questions. The answer is given for each question.	NCTM Illuminations: Problem Solving: Dealing with Data in the Elementary School Summary: This lesson plan is a project based unit on statistics. Students use the mean, mode, and median to analyze their data and use graphs to represent their findings. It furnishes a vehicle for problem solving through real data collection and analysis. MarcoPolo /NCTM Illuminations

Van Buren Public Schools

Course Name: 4th Grade Mathematics

STRAND: Data and Probability

Essential Outcomes/ Standards	Grade Level Content Expectations	Resources	Vocabulary	Assessments	Notes: Suggested Activities
Represent and solve problems for given data					
Solve problems using data presented in tables and bar graphs, e.g. compare data represented in two bar graphs and read bar graphs using two data sets.	D.RE.04.03 (Core)	Heath TM pgs 28-29, 74F, 74J, 78-79, 95, 105	Data Bar graph	<p>Bar Graphs Summary: Students demonstrate their knowledge of bar graphs by answering questions pertaining to both horizontal and vertical forms of bar graphs.</p>	<p>NCTM Illuminations: Consumer Investigations: What is The 'Best' Chip? Summary: In this I-Pub lesson plan, students will use data analysis to seek answers to the types of questions often posed by consumer agencies and people who work in sales and marketing. Students will develop a list of criteria for determining the 'best' snack chip. The students give presentations to the class, using charts, tables, or graphs that they developed to determine the best chip. MarcoPolo / NCTM Illuminations</p>