Subject	Grade	Strand	Big Idea	
Math	4	Number & Operations	Understanding number meanings and number relationships.	View
Math	4	Algebraic Relationships	Understanding Algebraic relationships in all areas.	View
Math	4	Geometric & Spatial Relationships	Understanding Geometric shapes and how they move.	View
Math	4	Measurement	Understanding measurement in objects, units, and time. Using tools and formulas to find measurements.	View
Math	4	Data & Probability	Understanding the use of data and probability to answer questions.	View

Rational

The basics for a good mathematical environment involves creating an atmosphere based on learning styles of individual students to be confident in his or her own ability to do mathematics and make connections across the disciplines as applies to his or her daily living.

Course Description

The third grade mathematics course will develop students who are confident in their mathematics skills through written and hands on practice. The course will include the development of geometry, spatial relationships, patterning, numerals, addition, subtraction, multiplication, division, measurement, money, time, and graphs in preparation for a strong math foundation.

Most Important Learner Outcomes

Students will be able to:

1. Identify and write commonly used fractions
2. Add and subtract three digit numbers with and without regrouping.
3. Compare two and three-dimensional shapes by comparing their attributes.
4. Compute multiplication and division facts fluently.
5. Identify and justify the appropriate unit of measure(linear, time, weight, money)
6. Construct, read, and interpret displays of data using graphs and charts.
7. Extend geometric shapes and patterns.

Evaluation

Fourth grade students are evaluated by teacher observations, journals, teacher made test, and textbook test.

Phelps County R3	**Board Approved Date:** **Modification Date:**
Subject: Mathematics	**Class Name: 4th Grade Mathematics**
Unit: Numbers and Operations	**Duration:** Throughout the year.
Show-Me Standards Content: MA 1, 5 **Show-Me Standards Process: 1.6, 1.10. 3.3, 3.6, 4.1**	
Grade Level Expectations: Numbers and Operations: 1A, 1B, 1C, 1D, 2A, 2C, 3A, 3B, 3C, 3D	

Benchmarks:	**Performance Indicators(Local Objective):**
Understand numbers, ways of representing numbers, relationships among numbers and number systems. Understand meanings of operations and how they relate to one another. Compute fluently and make reasonable estimates	Students will be able to: 1. Read, write and compare decimals to the hundredths place and whole numbers up to 6 digits. 2. Use models, benchmarks (0,1/2, and 1) and equivalent forms to judge the size of fractions. 3. Recognize equivalent representations for the same number and generate them by decomposing and composing numbers. 4. Classify and describe numbers by their characteristics, including odd, even, and multiples. 5. Represent and recognize multiplication using various models, including sets and arrays. 6. Apply commutative and identity properties of multiplication to whole numbers. 7. Represent a mental strategy used to compute a given multiplication problem (up to 2-digit by 2-digit multiple of) 8. Demonstrate fluency with basic number relationships (12x12) of multiplication and division. 9. Apply and describe the strategy used to compute a given: • Multiplication problem up to a 2-digit by 2-digit. • Division problem up to a 3-digit by 1-digit. 10. Estimate and justify the results of multiplication of whole numbers.

Activities and Assessments:

1. Each student will be given one 9"x12" sheet of construction paper, several copies of place value blocks (see attachment #1), crayons, and glue. Have the students cut out their patterns and use them to design on their construction paper. Then have them glue down each piece and add color to his picture Then have them calculate the total value of their picture by adding the value of each piece used. Finally direct the student to use the total calculated value of their picture to give it a title. Post the completed pictures on a bulletin board.

2. Using Notebook software each student will be able to write several numbers in different place values. The game will be adapted to use for decimals to the hundredths place.

3. Using attachment, students play a game in which they pick dominoes, identify them as whole numbers and /or decimal numbers, and find the sum of the numbers.

4. Using Notebook software, students will play "Creepy Crawly Fractions." They will learn fraction equivalents for sixths and eighths. Comparing them to 0, ½, 1.

5. Using attachment, student will get an understanding on equivalent fractions and fractional parts with a fun partner game. Make dice with fractions ½, 1/4, 1/8, 2/8, 1/16, and 2/6. Each pair of students will be given a die and two copies of the fraction-strip patterns. Instruct each partner to cut out the "1 whole" fraction strip and place it in front of them. Direct the pair to cut out the remaining strips and place them in a pile between themselves. To play, have the partners take turns rolling the die and placing a fraction strip that matches the fraction rolled on his1 whole fraction strip. Continue to play until one player has completely covered their 1 whole fraction strip without going over; then declare that player the winner. This activity can be adapted for any group of fraction.

6. Number Books: Give each student several half-sheets of 9"x12" construction paper and scissors. Instruct the students to select a number between 20 and 100, then write as many mathematical representation of that number as they can, (23, 20+3, money, roman numerals, etc.) each on a different sheet of construction paper. Have them create a title page and staple the booklet pages together. Place the completed number booklets in a learning center or reading corner for students to look through. As larger numbers are studied challenge students to make books for them, too.

7. Using Notebook software students will get an understanding of number patterns, computation, factors, and multiples, and divisibility rules.

8. Have students count off by ones. Instruct them to remember their numbers. Give directions that are appropriate to the concepts being studied. For example:

- all of the prime numbers stand
- all of the even numbers stand
- all of the odd numbers stand
- all numbers divisible by 1 stand (all stand)
- all numbers that are multiples of 5 stand

Have students who stand state their numbers in order. Correct any wrong "numbers."

9. Give each student a set of multiplication facts; have them use 3x5 cards and stickers to model the multiplication facts using sets and arrays.

10. Student will write in the Math Journal about commutative and identity properties of multiplication. They will make up several examples to show to the rest of the class.

11. Read a word problem from the text book to the class. For example:

- A $200.00 book shelf is on sale for 20% off

Present to the class either the problem's actual solution or an unreasonable solution. Without giving students time to work out the problem, ask them to raise a hand if they believe your stated answer is a reasonable solution to the problem.(up to 2-digit by 2-digit multiple of)

12. The students will practice their multiplication facts up to 12 x 12 daily until they have reached fluency by using mad math minutes.

13. Student will write in their Math Journal using ads from the newspaper to make up word problems that can be solved using multiplication. Have them trade problems, write number sentences, and solve. Before students solve the problems, encourage them to estimate whether the total cost will be more than or less than $100.

14. Students will write in their Math Journal in pairs. Each student makes up a word problem that is to be solved by using estimation with multiples. Students exchange and solve each other's problems. When they have completed the task, they discuss both solutions. Is the rounding correct? Is the answer a reasonable estimate for the problem? Can they tell whether the estimate is greater than or less than the answer to the problem?

15. Using Attachment, in the lesson students participate in activities in which they analyze information represented graphically. Students are asked to discuss, describe, read, and write about the graphs and the information they contain. The emphasis on using components of language is natural for students and helps them clarify the information depicted.

16. Once a week students will go to the computer lab to work on math subjects.

17. Students will complete daily math practice of 5 questions covering all 4th grade areas.

18. Students will complete assignments from a fourth grade level textbook as determined by the teacher. All chapters have numbers and operations.

Assessments:

Unit test
Daily work
Observation
Oral Presentation-see rubric in assessment area
Projects- see rubric in assessment area
Cooperative learning- see checklist in assessment area

Resources:

Saxon Math 2012

Daily Math Practice by Evan-Moor

Ten-minute Activities (4-6) by Evan-Moor

Notebook Software

Relevant Links:

www.amathsdictionaryforkids.com/

Interactive math dictionary

www.aaamath.com/grade4/html

Fourth grade math practice for most concepts

www.studyisland.com

www.multiplication.com

Phelps County R3	**Board Approved Date:** **Modification Date:**
Subject: Mathematics	**Class Name: 4th Grade Mathematics**
Unit: Algebraic Relationships	**Duration:** Throughout the year
Show-Me Standards Content: MA 4, 5 **Show-Me Standards Process: 1.6, 3.1, 3.6, 4.1**	
Grade Level Expectations: Algebraic Relationships 1A, 1B, 2A, 2B, 3A, 4A	

Benchmarks:	**Performance Indicators(Local Objective):**
Understands patterns, relationships, and functions.	1. Describe geometric and numeric patterns. 2. Analyze patterns using words, tables or graphs.
Represent and analyze mathematical situations and structures using algebraic systems.	3. Represent a mathematical situation as an expression or number sentence. 4. Apply the commutative property of multiplication to whole numbers.
Use mathematical models to represent and understand quantitative relationships.	5. Model problem situations, including multiplication such as graphs, tables or number sentences.
Analyze change in various contexts	6. Describe mathematical relationships in terms of constant rates of change.

Activities:

1. On a whiteboard or overhead, write a string of numbers. Beginning with simple sequences and progressing to more difficult ones. Have the class determine the pattern and supply the missing numbers. Have the students write their own number strings and use a model to represent it. Then the student will exchange them to solve each other's.
2. Begin by orally giving the students numbers that follow a pattern. Three students at a time come to the whiteboard. They finish each pattern by writing the next three numbers that follow the same pattern. When the students finish writing, ask on of them to tell what the pattern was. Have student think of different patterns.
3. Math Journal: Ask students to work in groups to make posters that illustrate mathematical situation as an expression and number sentences. They can illustrate the zero property (0x2=0), property of one (1x2=2), order property (2x4=8, 4x2=8), and commutative property (2x4=4x2).
4. Using attachment, have the student retell the problem in their own words. List the information given. Restate the question as a fill-in-the- blank sentence. List one or more problem-solving strategies that you can use. Predict what your answer will be. Show how you solved the problem. Write you answer in a complete sentence. Tell how you know that you answer is reasonable. Describe another way you could have solve the problem.
5. Make several word problems using charts for the students to read that show constant rates of change. Have the students tell how the rates of change are made. What the rates of change are. For an extension have them make their own chart to show rates of change. Have a partner solve.
6. Students will go to the computer lab once a week to review math vocabulary and work on math activities.
7. Students will complete daily math practice of 5 questions covering all 4^{th} grade area.
8. Students will complete assignments from a fourth grade level textbook as determined by the teacher.

Assessments:

Unit test
Daily work
Observation
Oral Presentation-see rubric in assessment area
Projects- see rubric in assessment area
Cooperative learning- see checklist in assessment area

Resources:

Saxon Math 2012 by Stephen Hake

Daily Math Practice by Evan-Moor

Ten-minute Activities (4-6) by Evan-Moor

Notebook Exchange

Relevant Links:

www.amathsdictionaryforkids.com/

Interactive math dictionary

www.aaamath.com/grade4/html

Fourth grade math practice for most concepts

www.studyisland.com

Phelps County R3	**Board Approved Date:** **Modification Date:**
Subject: Mathematics	**Class Name: 4th Grade Mathematics**
Unit: Geometric and Spatial Relationships	**Duration:** 4 Weeks
Show-Me Standards Content: MA 2 **Show-Me Standards Process: 1.6, 1.10, 3.3, 3.6, 4.1**	
Grade Level Expectations: Geometric and Spatial Relationships: 1A, 2A, 3A, 3C, 4A	

Benchmarks:	**Performance Indicators(Local Objective):**
Analyze characteristics and properties of two-and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.	1. Identify and describe the attributes of 2 and 3 dimensional shapes (prisms, cones, parallelism, perpendicularity)
	2. Describe the results of subdividing, combining and transforming shapes.
Specify locations and describe relationships using coordinate geometry and other representational systems.	3. Describe location using common language and geometric vocabulary (forward, back, left, right, north, south, east, west)
Apply transformations and use symmetry to analyze mathematical situations.	4. Predict the results of sliding/translating, flipping/reflecting or turning/rotating around the center point of a polygon.
Use visualization, spatial reasoning and geometric modeling to solve problems.	5. Construct a figure with multiple lines of symmetry and identify the lines of symmetry.
	6. Given the pictures of a prism, identify the shapes of the faces.

Activities:

1. Using Notebook software. Have the students study the one-dimensional, two-dimensional, and three-dimensional pictures. Have them label the shapes. (prisms, cones, parallelism, perpendicularity)
2. Read Grandfather Tang's Story. Have the students cut out tangrams from tag board for them to use to make the shapes as the story is being read to them. Discuss how subdividing, combining and transforming these shapes make different results. Have each student to describe how to make a new shape using their tangrams.
3. Each student becomes a mapmaker. After they have made the map they will give directions using vocabulary (forward, back, left, right, north, south, east, west) to have another student to follow to a point on the map.
4. Using Notebook software. The students will be using the skills of area, translation (sliding shapes), rotation (spinning shapes), reflection(flipping shapes), visual perception. The students use pattern blocks to draw each skill.
5. Using Notebook software students will learn to identify polygon and designs with point symmetry and rotational symmetry.
6. Math Journal: Have the students make a personal geometry dictionary as an ongoing project. Each entry

should be on a separate page that includes the term, a definition in the student's own words, and a sketch or picture that illustrates the term.

7. Each student will be given a picture of a prism and be asked to identify the shapes of the faces. Then students will trade pictures and identify the shapes of its faces. Repeat this several times. At the end of the time have the students take turns in identifying the prism that they have at the time. Have each student check their work.
8. Students investigate the ways shapes can be divided into equal pieces with one or two cuts.
9. Students will go to the computer lab once a week to review math vocabulary and work on math activities.
10. Students will complete daily math practice of 5 questions covering all 4th grade area.
11. Students will complete assignments from a fourth grade level textbook as determined by the teacher.

Assessments:

Unit test
Math Journal
Daily work
Observation
Oral Presentation-see rubric in assessment area
Projects- see rubric in assessment area
Cooperative learning- see checklist in assessment area

Resources:

Saxon Math 2012 by Stephen Hake
Daily Math Practice by Evan-Moor
Grandfather Tang's Story by Ann Tompert
Geometric Manipulative
Pattern Blocks
Tangrams
Notebook presentations saved

Relevant Links:

www.amathsdictionaryforkids.com/
Interactive math dictionary
www.aaamath.com/grade4/html
Fourth grade math practice for most concepts
http://nlum.usu.edu/en/nau/ulibrary.html
Interactive Math
www.studyisland.com

Phelps County R3	**Board Approved Date:** **Modification Date:**
Subject: Mathematics	**Class Name: 4th Grade Mathematics**
Unit: Measurement	**Duration:** 3 Weeks
Show-Me Standards Content: MA 2 **Show-Me Standards Process: 1.6, 1.10, 3.1, 3.3, 3.4, 4.1**	
Grade Level Expectations: Measurement: 1A, 1B, 1C, 1D, 2A, 2B, 2C	
Benchmarks: Understand measurable attributes of objects and the units, systems and processes of measurement. Apply appropriate techniques, tools and formulas to determine measurements.	**Performance Indicators(Local Objective):** 1. Identify and justify the unit of linear measure including perimeter and (customary metric) 2. Identify equivalent linear measures within a system of measurement. 3. Tell time to the nearest minutes. 4. Determine change from $10.00 and add and subtract money values to $10.00. 5. Select and use benchmarks to estimate measurements (linear, capacity, weight) 6. Select and use benchmarks to estimate measurements of 0-, 45-, 90- degree angles 7. Determine the area of a polygon on a rectangular grid.

Activities:

1. Using Attachment. Students will go on a measure hunt. They will be using measuring and estimating length, metric measurements, and rounding.
2. Using Attachment. Students will measure several rectangular or square objects using ruler, yardstick, or meter stick. They will estimate the perimeter and then confirm it by actual measuring of the object.
3. Using Attachment and Notebook software. Students will use units of measure to decide which one matches. Example (3 feet in a yard, etc.)
4. Using Attachment and Notebook software. Students will be taught how to use metric conversions.
5. Using Attachment. Students will able to explain weight measured in three different units. (linear, capacity, weight.
6. Using Attachment. Student will be able to estimate how much time it will take to perform different events. They will then time the activities to the nearest minute
7. Students will be given a Wal-Mart shopping sale bill to shop from. They will be allowed to spend up to $10.00 on school supplies. They will then add what they spent together in a number sentence. They will then make a number sentence on how much they spent and how much change they should get back. The teacher will collect all the problems and make an overhead from them and have students take turns solving the problem.
8. Using Attachment and Notebook software. Students will use Judy clocks to estimate measurements of 0-,45-,90- degree angles.
9. Using Notebook software. Students will determine the area of the polygon on a rectangular grid.
10. Ideas with Food: A Brownie Bake; Using attachment students determine the amount of each ingredient needed to make brownies, and then they figure out how to divide the brownies evenly among their classmates.
11. Students will go to the computer lab once a week to review math vocabulary and work on math activities.
12. Students will complete daily math practice of 5 questions covering all 4^{th} grade area.
13. Students will complete assignments from a fourth grade level textbook as determined by the teacher.

Assessments:

Unit test
Daily work
Observation
Oral Presentation-see rubric in assessment area
Projects- see rubric in assessment area
Cooperative learning- see checklist in assessment area

Resources:

Saxon Math 2012 by Stephen Hake
Daily Math Practice by Evan-Moor
Ten-minute Activities (4-6) by Evan-Moor
Judy Clocks
Notebook presentations saved

Relevant Links:

www.amathsdictionaryforkids.com/

Interactive math dictionary

www.aaamath.com/grade4/html

Fourth grade math practice for most concepts

www.sd104.s-cook.k12.il.us/mathlinks.htm

Activities for Measurement and Time

www.studyisland..com

Phelps County R3	**Board Approved Date:** **Modification Date:**
Subject: Mathematics	**Class Name: 4th Grade Mathematics**
Unit: Data and Probability	**Duration:** 4 Week
Show-Me Standards Content: MA 3 **Show-Me Standards Process: 1.2, 1.8, 3.1, 4.1**	
Grade Level Expectations: Data and Probability:1A, 1C, 2A, 3A	
Benchmarks: Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them.	**Performance Indicators(Local Objective):** 1. Collect data using observations, surveys and experiments. 2. Create tables or graphs to represent categorical and numerical data (including line plots). 3. Describe important features of the data set. 4. Given a set of data, propose and justify conclusions that are based on the data.

Activities:

1. Using Notebook software students will play "Color Scheme". This game will use skills: Probability, graphing, gathering and analyzing data, making predictions, and ratios.
2. Using Attachment. Student will take a poll of different types of things that 4th graders like and dislike. Discuss the data set and make a graph to represent it.
3. Have students collect data by doing an experiment, such as rolling a die and recording results or a spinner or flip a coin. Have the students take the results and make a line plot. The students will then discuss in group the conclusion and give the reasons why it turned out this way.
4. Eat Your Veggies: Tally Time; Using attachment students will tally data about food preferences and learn the convention of displaying a set of five tallies.
5. Students will go to the computer lab once a week to review math vocabulary and work on math activities.
6. Students will complete daily math practice of 5 questions covering all 4th grade area.
7. Students will complete assignments from a fourth grade level textbook as determined by the teacher.

Assessments:

Unit test
Daily work
Observation
Oral Presentation-see rubric in assessment area
Projects- see rubric in assessment area
Cooperative learning- see checklist in assessment area

Resources:

Saxon Math2012 by Stephen Hake
Daily Math Practice by Evan-Moor
Ten-minute Activities (4-6) by Evan-Moor
Dice
Number blocks
Counters
Coins
Notebook presentations saved

Relevant Links:

www.amathsdictionaryforkids.com/
Interactive math dictionary
www.aaamath.com/grade4/html
Fourth grade math practice for most concepts
http://nlvm.usu.edu/en/nav/vlibrary.html
Virtual math manipulative
http://kidshealth.org/kid/stay_healthy/food/pyramid.html
Kids health Organization
www.Studyisland.com