

| Subject | Grade | Strand | Big Idea | |
|----------------|--------------|---|---|----------------------|
| Math | 7 | | Rationale, Course Description, Most Important Learner Outcomes, and Evaluation | View |
| Math | 7 | Number and Operations | Students will find GCF and convert fractions to decimals. | View |
| Math | 7 | Numbers and Operations | Students will apply all operations on fractions. | View |
| Math | 7 | Number and Operations/Algebraic Relationships | Students will convert between fractions, decimals, and percents, find percent of a number and percent of increase or decrease, and explore simple interest | View |
| Math | 7 | Number and Operations | Students will use ratios, rates, and proportions to solve problems. | View |
| Math | 7 | Number and Operations | Students will apply all operations on integers | View |
| Math | 7 | Algebraic Relationships | Students will write expression and equations and solve equations and inequalities using all functions | View |
| Math | 7 | Algebraic Relationships | Students will explore functions and function rules and graph linear and non-linear functions | View |
| Math | 7 | Geometric and Spatial Relationships | Students will explore all types of transformations | View |
| Math | 7 | Geometric and Spatial Relationships | Students will explore types of polygons and three-dimensional figures | View |
| Math | 7 | Measurement | Students will use tools to measure angles, and solve problems involving circumference and area of circles and polygons. | View |
| Math | 7 | Measurement | Students measure capacity and volume and practice converting measurements within systems | View |
| Math | 7 | Measurement | Students will discover precision and accuracy | View |
| Math | 7 | Data and Probability | Students will use measures of central tendency and graph data using histograms, box and whisker plots, and scatter plots, as well as determine appropriate graphs for data situations | View |
| Math | 7 | Data and Probability | Students will design studies and explore population samples using the capture/recapture method | View |

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| Math | 7 | Data and Probability | Students will explore simple probability, permutations, combinations, counting principle, sample spaces, and tree diagrams | View |
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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Number Sense and Operations—Basic Fractions | Duration: 2 weeks |
| Show-Me Standards Content: MA 1, 5 Show-Me Standards Process: 1.10, 3.3, 3.4, 3.6 | |
| Grade Level Expectations: NO 01.A.07, NO 01.B.07, NO 01.C.07, NO 01.D.07, NO 02.C.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Understand numbers, ways of representing numbers, relationships among numbers and number systems. • Understand meanings of operations and how they relate to one another | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Compare and order integers, positive rational, and percents including finding their approximate location on a number line. 2. Use fractions and decimals to solve problems. 3. Recognize equivalent representations for the same number and decompose/compose numbers including exponential notation. 4. Use factors and multiples to describe relationships between and among numbers. 5. Apply properties of operations including order of operations and positive rational numbers. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Greatest Common Factor Matching—Divide students into pairs. Give each pair two cards with matching numbers. Each student lists the factors of their numbers and compares with their partner to decide on a GCF. They post the cards on the board with the correct answer. 6. Simplest Form Matching—Divide students into two groups—one group of students will have fractions in simplest form, the other group will be unreduced fractions. Students with the unreduced fractions find out the simplest form of their fraction and match up with the correct student. Students check this activity by fitting the puzzle pieces together. 7. Fraction/Decimal Line-up—Give each student an index card with either a fraction or a decimal. Without talking, the fractions convert to decimals and everyone lines up without speaking. When they are correct, they then place themselves on a number line on the floor made with masking tape and index cards. 8. Quia games—students can play a matching game and Concentration for both LCM and fraction/decimal conversion. | |

9. Grid Game—Students pick a level then find factors and multiples of numbers to reveal a secret message.

Relevant Links: <http://www.mathgoodies.com/lessons/vol3/lcm.html>
<http://www.quia.com/mc/74793.html>
<http://www.quia.com/cc/74793.html>
<http://www.quia.com/mc/65724.html>
<http://www.quia.com/cc/65724.html>
<http://www.bbc.co.uk/education/mathsfife/shockwave/games/gridgame.html>

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters
Study Island: www.studyisland.com

Materials:

GCF game cards, Simplifying Fractions game cards, index cards, masking tape, computer

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Number Sense and Operations—Problem Solving with Fractions | Duration: 2 weeks |
| Show-Me Standards Content: MA 1, 5 Show-Me Standards Process: 1.10, 3.4, 3.6, 4.1 | |
| Grade Level Expectations: NO 01.B.07, NO 01.C.07, NO 01.D.07, NO 02.B.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Understand numbers, ways of representing numbers, relationships among numbers and number systems. • Understand meanings of operations and how they relate to one another | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Use fractions and decimals to solve problems. 2. Recognize equivalent representations for the same number and decompose/compose numbers. 3. Use factors and multiples to describe relationships between and among numbers. 4. Describe the effects of multiplication and division on fractions. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues every day as part of the daily assignment. 3. Students will create a journal and look up and add all vocabulary words relevant to the unit, along with working all practice problems in the journal for a homework and study reference. Activities for this unit may contain the following: 4. LCM Relay—Take students to the gym. Instruct each one to walk a lap and time it. Record the times on a table. Pair the times up. Find the LCM of each pair of numbers. This is the number of laps that each student would have to walk at that pace to catch up with each other. For bonus, have the students find the LCM of the entire class. 5. Mixed Number/Improper Fraction Bingo—Teacher will give out either a mixed number or improper fraction and students must find its counterpart on the bingo board. 6. Recipe Math—Using a recipe for chocolate chip cookies, add up all the dry ingredients and wet ingredients. This recipe can also be used for doubling or halving when doing multiplication and division. 7. Students will design a room and give it dimensions that must be mixed numbers. They have to include at least three pieces of furniture in their room and give them dimensions also. They will find the area of the room and each piece of furniture. They will also tell how much of the room is and isn't covered by furniture. 8. Fishy Fractions—Students solve addition problems involving fractions and match them to the correct answer. 9. No Matter What Shape Your Fractions are In—Students use tangram shapes to solve addition and subtraction fraction problems. 10. Distributive Property Games—Quia site for matching, Concentration, and a word search involving distributive property. | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Relevant Links: <http://www.iknowthat.com/com/L3?Area=FractionGame&COOK=>

<http://math.rice.edu/~lanius/Patterns/>

<http://www.quia.com/mc/428706.html>

<http://www.quia.com/cc/428706.html>

<http://www.quia.com/ws/428706.html>

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

<http://go.hrw.com>

Math Practice Grades 5-6 Instructional Fair

Materials: Stop watch, rulers, recipe, computer

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Number Sense and Operations—Solving Problems with Percents | Duration: 2 weeks |
| Show-Me Standards Content: MA 1, 4 Show-Me Standards Process: 1.6, 1.10, 3.3, 3.4, 4.1 | |
| Grade Level Expectations: NO 01.B.07, NO 02.B.07, NO 03.C.07, NO 03.D.07, AR 03.A.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Understand numbers, ways of representing numbers, relationships among numbers and number systems. • Understand meanings of operations and how they relate to one another. • Use mathematical models to represent and understand quantitative relationships. • Compute fluently and make reasonable estimates | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Use fractions and decimals to solve problems. 2. Describe the effects of multiplication and division on fractions. 3. Model and solve problems using expressions. 4. Multiply and divide positive rational numbers 5. Estimate and justify the results of multiplication and division of positive rational numbers |
| <p style="text-align: center;">Activities and Assessments:</p> <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Soda Survey—Make a table with different kinds of soda listed. Each student votes for his/her favorite kind of soda. Record these on the table. Convert each one to fraction, decimals, and percents. Make a pie chart using titles, labels, etc. and color. 6. Computer Lab—Student will go to the computer lab and complete the activities related to the chapter as a review. <p>www.mathgoodies.com/lessons/vol4/challenge_vol14.html --computer</p> <p>www.bbc.co.uk/skillwise/numbers/fractiondecimalpercentage/comparing/fractionspercentages/game.shtml</p> <p>www.mathplayground.com/files/percentof.html</p> <p>http://nlvm.usu.edu/en/nav/vlibrary.html</p> <ol style="list-style-type: none"> 7. Bank investigation—Students will contact at least three banks in the area and find out what their loan rates are for an auto loan, land/property loan, and livestock loan. Students will use the newspaper classified section to find at least one example of each and determine the amount of interest they will have to pay. Students will then compare rates and decide which bank has the best interest rate for each type of loan. 8. Fraction Conversion Bingo—Students receive a card with various fractions, decimals, and percents on them. The teacher has cards that correspond with these. Students cover either the amount called or the equivalent to get a bingo. 9. Fraction/Decimal/Percent Matching—Students play a matching game that will uncover a hidden picture. | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Relevant Links:

www.mathgoodies.com/lessons/vol4/challenge_vol14.html --computer

www.bbc.co.uk/skillwise/numbers/fractiondecimalpercentage/comparing/fractionspercentages/game.shtml

www.mathplayground.com/files/percentof.html

nlvm.usu.edu/en/nav/vlibrary.html

www.dese.mo.gov constructed response items

<http://ofcn.org/cyber.serv/academy/ace/math/cecmath/cecmath052.html>

http://www.harcourtschool.com/activity/con_math/g05c28.html

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: white paper, colored pencils, computers

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 TH Grade Math | Class Name: Basic Math |
| Unit: Number Sense and Operations—Ratios and Proportions | Duration: 2 weeks |
| Show-Me Standards Content: MA 1 | |
| Show-Me Standards Process: 3.3 | |
| Grade Level Expectations: NO 03.E.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Compute fluently and make reasonable estimates. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Solve problems involving proportion, such as scaling and finding equivalent ratios. |

Activities and Assessments:

1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources.
2. Real-World Components—Students will complete word problems dealing with real-world issues every day as part of the daily assignment.
3. Students will create a journal and look up and add all vocabulary words relevant to the unit, along with working all practice problems in the journal for a homework and study reference.
Activities for this unit may include the following:
4. Use smart board to complete equivalent ratio activities at <http://math.rice.edu/~lanius/proportions/index.html>.
5. Figuring Baseball Averages—pass out baseball cards or put one up on overhead. Look at the back of the card and find batting average. Explain that it is a ratio of hits/at bats. Go to website <http://web.buddyproject.org/web012/web012/default.htm>. Figure the batting average of the players.
6. Car Mileage—Students will determine gas mileage of three cars based on gas tank capacity and miles traveled. They will also analyze which car gets the best gas mileage.
7. Colored Counters—Students will open a bag full of paper counters, sort, and count. Using what they know about proportions, they will figure out how many counters of each color there should be if there were only sixty in the bag. If there were 17 green counters at the first ratio, how many of each color would there be? How many in all?
8. Create a scale drawing—Students will measure the length and width of the room. They will then set up a proportion for creating a scale drawing. They will draw the room on 8 1/2 x 11 paper. They should also measure a desktop and draw at least three desks using the same scale.
9. Proportional Cartoons—Students will take a comic strip and measure the character’s width and height. They will then figure out how big their new character needs to be if the width or length is a certain amount. They will measure this area and mark it on a sheet of paper and attempt to redraw the character.
10. Baseball Proportion—Students will use a regulation size baseball bat and a souvenir baseball bat to determine the height of a person who would use the souvenir bat.
11. How tall is it?—Students will use their own heights and the lengths of shadows to determine the actual heights of various things around campus such as the flagpole, mail box, gym, etc.
12. Grocery Store Ads—Students will use newspaper grocery store ads to determine the unit rate prices for certain foods and compare them to find the best value.

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe

Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: SMARTboard, paper counters, meter sticks, white paper, baseball cards, cartoon strips from newspapers, newspaper grocery store ads

Relevant Links:

<http://math.rice.edu/~lanius/proportions/index.html>

<http://web.buddyproject.org/web012/web012/default.htm>

<http://www.eduref.org>

<http://www.eduref.org>

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Number Sense and Operations--Integers | Duration: 1.5 weeks |
| Show-Me Standards Content: MA 1, 5 Show-Me Standards Process: 3.3, 3.4, 3.6 | |
| Grade Level Expectations: NO 02.D.07, NO 01.A.07, NO 02.B.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Understand numbers, ways of representing numbers, relationships among numbers and number systems. • Understand meanings of operations and how they relate to one another. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Compare and order integers, positive rationals and percents, including finding their approximate location on a number line. 2. Describe the effects of addition and subtraction on integers. 3. Approximate the value of square roots to the nearest whole number. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Computer lab activities—use these sites for additional practice with adding and subtracting integers: http://www.mathguide.com/cgi-bin/quizmasters/IntegersAdd.cgi, http://amby.com/educate/math/integ_xl.html 6. Integer Line-up—Hand out index cards with integers and non-integers. Those with fractions convert to decimals. Line up, in order from least to greatest without speaking. 7. Absolute Value Number Line—Using a strip of white paper, fold in half and mark the center with zero. Make equal lines on both sides of the zero, numbering with positive and negative numbers. Fold in half again so that the numbers overlap and see which ones match. 8. Bean Toss—Spray paint lima beans red on one side. These are the negative representations of integers, the other side is positive. Pair students up and toss the beans. Find the score by determining the sum of the problem. 9. Population Study—Using an encyclopedia or search engine find the population of Missouri and the United States. Complete Enrichment 10.8. 10. Interesting Integers—Students will research various real-world uses of integers and complete activities in this webquest. 11. Line Jumper—Students answer integer problems and find the answers on a number line. 12. Mystery Pictures—Students match answers to problems to uncover a hidden picture. | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe

Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: index cards, tape, lima beans, spray paint, strip paper, computer

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Algebraic Relationships--Equations | Duration: 2 weeks |
| Show-Me Standards Content: MA 4 Show-Me Standards Process: 1.6, 3.1, 3.6 | |
| Grade Level Expectations: AR 02.A.07, AR 02.B.07, AR 03.A.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Represent and analyze mathematical situations and structures using algebraic symbols. • Use mathematical models to represent and understand quantitative relationships. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Use variables to represent unknown quantities in equations and inequalities 2. Generate equivalent forms for simple algebraic expressions. 3. Model and solve problems using multiple representations such as graphs, tables, expressions, equations or inequalities. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Computer Lab activities: The following sites may be used for practice during this unit: www.321know.com/equ.htm, www.algebrahelp.com/worksheets/view/equationbasics.quiz 6. Who is correct?—Students will work with a set of equations based on flooring a room in a house and decide who has the correct equation for figuring the cost and materials needed. 7. Simon Says Inverse—To explore inverse operations, students will play Simon Says, but they must do the opposite of what the teacher says. Students doing the same thing will be eliminated. 8. Equation Matching--Before class, teacher makes up the 3 X 5 cards. On the back of two cards, write the letter "A." Do the same with "B" and "C" and so on until you have enough for each student to get one card. The purpose of this is so that each student will be paired up with another student that has that same letter. On one of the cards, write an equation that your level can solve such as: $2x + 5 =$, $3x - 18 =$, $x^2 + 5 =$ On the corresponding card for that letter, write a number from 20 to 100. Mix up the cards at random, making sure that half the kids will get an equation, and half the kids will get a number. They are then to pair up with the person that has the same letter on the back of their card. They put them together and solve the equation. Teacher then picks random students to present their problems on the board. 9. Equation Bingo—Make 5x5 bingo cards with various numbers on them. The caller reads out an equation. The students find the answer to the problem and place a marker on their bingo card. First person to cover five in a row across, down, or diagonally is the winner. 10. Pass the Pencil—Split students into even groups. Designate one player as A, one as B, and so on. Each student will have a copy of an equation with the preceding player’s variable. The teacher | |

starts the game by giving the value of A. The A student substitutes his value and hands it to B, and so on.

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe

Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: computer, index cards

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Algebraic Relationships—Functions | Duration: 2 weeks |
| Show-Me Standards Content: MA 2, 4 Show-Me Standards Process: 1.6, 3.6, 4.1 | |
| Grade Level Expectations: AR 01.B.07, AR 01.D.07, AR 01.E.07, AR 03.A.07, AR 04.A.07, AR 01.C.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Understand patterns, relationships, and functions. • Use mathematical models to represent and understand quantitative relationships • Analyze change in various contexts. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Identify and compare functions. 2. Describe the effects of parameter changes. 3. Use mathematical models. 4. Analyze change. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills Whole number cruncher: Students enter several inputs into the function machine and are given the outputs. They must determine the function rule. (http://www.shodor.org/interactivate/activities/WholeNumberCruncher/) 5. Function machine: Students drag inputs into the function machine and complete a function table. (http://nlvm.usu.edu) 6. Fun and Sun, Rent-a-Car: Students complete a table for weekly and daily rates of different car rental companies. They also complete a graph for each. Each graph is then written as a function. (http://math.rice.edu/~lanius/Algebra/rentacar.html) 7. Bouncing Tennis Balls: Groups of four students bounce a tennis ball, counting the number of bounces in each 10 second interval for two minutes. They record the results on a table. Using graph paper and the web, they graph the results. (http://illuminations.nctm.org/LessonDetail.aspx?id=L246) 8. Exploring Linear Data: Students record data into a function table, graph it, and determine a line of best fit and a relationship between the two sets of data. (http://illuminations.nctm.org/LessonDetail.aspx?id=L298) 9. Bungee M & M’s: Hand out introduction sheet and instructions to students. They will place a meterstick between two desks and attach a slinky to it with connected paper clips. Measure from the bottom of the cup to the floor and record. Add one M & M and measure. Record results. Repeat four-five more times, recording data each time a M & M is added. Graph the data, then analyze using questions. 10. Doorman’s Code—Students determine a pattern to figure out the secret code to open a door. (http://pbskids.org/zoom/activities/sci/doormanscode.html) | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe

Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: Computer, graph paper, M & M candy, Slinky, meterstick

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic math |
| Unit: Geometry and Spatial Relationships-- Transformations | Duration: 1 week |
| Show-Me Standards Content: MA 2 Show-Me Standards Process: 1.6, 3.6 | |
| Grade Level Expectations: GSR 03.A.07, GSR 03.B.07, GSR 03.C.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Students will apply transformations and use symmetry to analyze mathematical situations. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Reposition shapes under informal transformations. 2. Describe the relationship between scale factor and perimeter using dilation. 3. Determine all lines of symmetry of a polygon. |
| <p style="text-align: center;">Activities and Assessments:</p> <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Transmographer—Students will use coordinates to translate various shapes over both the x- and y- axes. 6. NLVM Transformation Activities—Students can explore each type of transformation using these activities. 6. Bathroom Tiles—Students will translate, rotate, and reflect tiles to tile a bathroom. 7. Transforming Shapes—This activity is downloaded onto the SMARTBoard to allow students to actually transform the various shapes. 8. Tangram transformations—Students will use tangrams and graph paper to apply all transformations. 9. Tessellations—Students will create tessellations using tangrams and transformations. <p>Assessments: Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).</p> <p style="text-align: center;">Resources:</p> <p>Math textbook: <i>Mathematics Applications and Concepts Course 2</i>, Glencoe <i>Mathematics Applications and Concepts Course 2, Resource Masters</i> Study Island: www.studyisland.com</p> <p>Materials: SMARTBoard, tangrams, graph paper, construction paper, scissors, tangrams</p> | |

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic Math |
| Unit: Geometric and Spatial Relationships—Types of Polygons and Three-Dimensional Figures | Duration: 2 weeks |
| Show-Me Standards Content: MA 2 Show-Me Standards Process: 1.6, 3.6 | |
| Grade Level Expectations: GSR 01.A.07, GSR 01.B.07, GSR 02.A.07, GSR 04.A.07, GSR 04.B.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Analyze characteristics and properties of two and three dimensional geometric shapes • Develop mathematical arguments about geometric shapes. • Specify locations and describe spatial relationships using coordinate geometry and other representational systems. • Use visualization, spatial reasoning and geometric modeling to solve problems. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Classify two and three dimensional shapes based on their properties. 2. Describe the relationships between corresponding sides, angles and perimeters of similar polygons. 3. Given ordered pairs, identify geometrics shapes in the coordinate plane using properties. 4. Use spatial visualizations to identify various two dimensional views of isometric drawings. 5. Draw or use visual models to represent and solve problems. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Computer lab activities for extra practice: Types of polygons—http://www.321know.com/geo318x1.htm Geometric shape flashcards—http://www.aplusmath.com/cgi-gin/flashcards/geoflash Geometric terms games—http://www.quia.com/jg/65535.html Discovering polygons—http://library.thinkquest.org/J002441F/polygons.htm Geometry—http://www.aaamath.com/geo.html Figures and Polygons—http://www.mathleague.com/help/geometry/polygons.htm 6. Polygon Capture—Students turn over cards with properties of polygons on them. They must “capture” that polygon from the pool of cards. 7. Polygon City—Students will write a story about a city named after a polygon. The characters and setting correspond with polygons. 8. Geoboards—Students use various geoboards online to create shapes with coordinates. 9. Draw that Map—Students use directions to create a map of a city, then answer geometric questions | |

based on their map.

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Intro to Geometry, Instructional Fair

Math Achievement, Carson-Dellosa Publishing

Mastering the Standards: Pre-Algebra, Bell, Murney R.

Mastering the Standards: Geometry, Bell, Murney R.

Materials: Computers, isometric drawing paper, dot paper

Relevant Links:

Types of polygons— <http://www.321know.com/geo318x1.htm>

Geometric shape flashcards— <http://www.aplusmath.com/cgi-gin/flashcards/geoflash>

Geometric terms games— <http://www.quia.com/jg/65535.html>

Discovering polygons— <http://library.thinkquest.org/J002441F/polygons.htm>

Geometry— <http://www.aaamath.com/geo.html>

Figures and Polygons— <http://www.mathleague.com/help/geometry/polygons.htm>

Polygon Capture— <http://illuminations.nctm.org>

Polygon City— http://www.successlink.org/gti_lesson.asp?lid=2674

Geoboards— http://nlvm.usu.edu/en/nav/category_g_2_t_3.html

Draw that Map— http://www.successlink.org/gti/gti_lesson.asp?lid=2411

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Grade Math | Class Name: Basic math |
| Unit: Measurement: Circumference and Area | Duration: 2 weeks |
| Show-Me Standards Content: MA 2 Show-Me Standards Process: 1.4, 1.6, 3.2, 3.4, 4.1 | |
| Grade Level Expectations: M 02.B.07, M 02.C.07, M 01.B.07 | |
| Benchmarks: <ul style="list-style-type: none"> • 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): <ol style="list-style-type: none"> 1. Identify the equivalent area measures within a system of measurement. 2. Use tools to measure angles to the nearest degree. 3. Describe how to solve problems involving circumference and/or area of a circle. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Tile time—find area and figure cost for tiling a room of various shapes. 6. Figure the area—use pattern blocks of varying size to find area of unknown spaces. 7. Paint power—find area and figure cost of painting a room 8. Family Bakery—Answer questions involving area of a building and of various size and shapes of baking pans. 9. Carpeting a House—Find area of various rooms and figure the cost of the carpet. Create scale drawings of the rooms. 10. Hugo’s Kitchen Remodeling Company—Find area, perimeter, and circumference of tables and other types of kitchen fixtures. 11. Service in the Park—Figure cost of various service projects using area of rectangles and circles. 12. Playground Game Design—Create a game that will fit inside a circle. Write the rules and decide how much area the game will need. 13. Budgeting—Using a monthly allowance, set up a budget. Create a circle graph of the various parts of the budget using a protractor. 14. Fractional Robots—Create a robot using various area parameters. Create a circle graph using a protractor and compass showing the different colors of the robot. 15. Geometric Rockets—Use various shapes to create a rocket. Measure the area of each shape. 16. Penny for Your Thoughts—Measure the diameter of different coins. Calculate the area and circumference of each. | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe

Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: rulers, protractors, compass, computer, string, scissors, paper

Relevant Links:

<http://www.teachercreated.com/books/3843>

http://www.usmint.gov_about_the_mint/index.cfm?action=coin_specifications

<http://www.edmunds.com>

<http://www.dese.mo.gov>

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Math | Class Name: Basic math |
| Unit: Measuring capacity and volume/Conversion of measurements | Duration: 1.5 weeks |
| Show-Me Standards Content: MA 2 Show-Me Standards Process: 1.6, 1.10, 3.1, 4.1 | |
| Grade Level Expectations: M 01.A.07, M 02.E.07, M 01.B.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Students will understand measurable attributes of objects and the units, systems, and processes of measurement. • Students will apply appropriate techniques, tools, and formulas to determine measurements. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Identify and justify the unit of measure for volume. 2. Convert from one unit to another within a system of measurement. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Have a Heart—Students will convert various units given a volume of blood pumped through the heart. 6. Conducting a Metric Olympics—Students design games involving metric capacity. 7. Lunch Bag Volume—Using different sizes of lunch bags/boxes, students will determine volumes using different measurements such as candy bars, crackers, etc. 8. Exploring the Solar System—Students will research the sizes of planets in the Solar System. They will then convert metric measurements of the planets. 9. How Big is a Whale?—Students will research the sizes of various whales. They will then convert from metric to customary units. 10. Measuring Conservation—Students will obtain various sizes of beakers such as milliliter, liter, cup, pint, gallon, etc. They will start with the smallest and make a prediction about how many of _____ will fill up _____. They will then test their predictions. | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe

Mathematics Applications and Concepts Course 2, Resource Masters

Study Island: www.studyisland.com

Materials: lunch bags, rulers, calculators, beakers of various sizes

Relevant Links:

<http://www.teachercreated.com/books/3843>

<http://www.enchantedlearning.com/subjects/astronomy/planets>

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Math | Class Name: Basic math |
| Unit: Measurement of time and precision | Duration: 1 week |
| Show-Me Standards Content: MA 2, 5 Show-Me Standards Process: 1.6, 1.10, 3.1, 3.4 | |
| Grade Level Expectations: M 01.C.07, M 02.D.07 | |
| Benchmarks: <ul style="list-style-type: none"> • 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): <ol style="list-style-type: none"> 1. Solve problems involving addition and subtraction of time. 2. Analyze precision and accuracy in measurement situations. |

Activities and Assessments:

1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources.
2. Real-World Components—Students will complete word problems dealing with real-world issues.
3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test.
4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills
5. Significant Figures—Students will use various rulers to measure lengths of paper, then determine the most significant and accurate.
6. Understanding Time—Students will create a sun-dial and record times. They will then solve problems involving the addition and subtraction of time using the dial.

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters
 Study Island: www.studyisland.com

Materials: blue, red, yellow paper; stick, paint, rocks

Relevant Links: <http://www.eduref.org/Virtual/Lessons/Mathematics/Measurement/MEA0010.html>

<http://school.discovery.com/lessonplans/programs/time/>

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|---|---|
| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Math | Class Name: Basic Math |
| Unit: Data and Probability--Graphing Data and Measures of Central Tendency | Duration: 1 week |
| Show-Me Standards Content: MA 3 Show-Me Standards Process: 1.8, 3.4, 3.6 | |
| Grade Level Expectations: DP 02.A.07, DP 02.B.07, DP 01.C.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them. • Select and use appropriate statistical methods to analyze data. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Select, create and use appropriate graphical representations of data including circle graphs, histograms, and box and whisker plots. 2. Find, use and interpret measures of center and spread including ranges and interquartile range. 3. Compare different representations of the same data and evaluate how well each representation shows important aspects of the data. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Trash, Trash Everywhere—Students determine the amount of trash produced in America in one year. They will also calculate the amount of trash for a fictional town, graph the data, and convert into a circle graph. 6. Top Secret Numbers—Using the CIA’s factbook, students will record various information in tables. The will convert these into circle graphs. 7. Average Numbers—Use a dice-rolling website to complete a certain number of rolls to complete problems. Determine the mean and median of the rolls. 8. Sneaking Around/Gone Fishing—Students will show data in various forms such as bar graphs, line graphs, and circle graphs. 9. At the Fair/Garden City Resort—Student will find the mean, median, and mode of visitor information for events. They can also create box and whisker plots for some of the information. 10. Comparing Grass Growth vs. Price—Students will grow grass seeds of four different varieties and prices. They will chart the number of seedlings that germinate of each variety. They will create a bar and line graph from the data. 11. Statistical Concepts—Students use their heights to figure mean, median, mode, and range and graph. 12. In a Heartbeat—Students will graph the beats per minute of their hearts after various exercises to determine a trend on a scatter plot. | |

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters
Study Island: www.studyisland.com

Materials:

computers, protractors, grass seeds, plastic cups

Relevant Links:

<http://www.teachercreated.com/books/3843>

<http://www.census.gov/main/www/poplock.html>

<http://www.cia.gov/cia/publications/factbook/>

<http://www.irony.com/igroll.html>

<http://www.pbs.org/mathline>

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7th math | Class Name: Basic math |
| Unit: Data and Probability--Designing studies and population samples | Duration: 1 week |
| Show-Me Standards Content: MA 3 Show-Me Standards Process: 1.2, 3.5 | |
| Grade Level Expectations: DP 03.A.07, DP 01.A.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them. • Develop and evaluate inferences and predictions that are based on data. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Formulate questions, design studies and collect data about a characteristic. 2. Use observations about differences between samples to make conjectures about the populations from which the sample were taken. |
| Activities and Assessments: <ol style="list-style-type: none"> 1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources. 2. Real-World Components—Students will complete word problems dealing with real-world issues. 3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test. 4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills 5. Collecting Data—Students will conduct “tests” based on various topics, record the data on tables, then transfer to the appropriate graph. Students may use teacher-approved websites to do research to answer their questions. 6. Go Fish!—Students will determine the population of fish in a pond using the capture-recapture method and colored goldfish crackers. 7. Population Sampling—Students will use the site “Worldbook Online” to investigate the populations of different countries and their ethnic breakdown. They will then use the formula for population sampling to determine the population of unknown ethnicities in the countries. | |
| Assessments: Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island). | |
| Resources: Math textbook: <i>Mathematics Applications and Concepts Course 2</i> , Glencoe <i>Mathematics Applications and Concepts Course 2, Resource Masters</i> Study Island: www.studyisland.com | |
| Materials: goldfish crackers, measuring stick, stopwatch, computer | |
| Relevant Links: http://www.worldbookonline.com | |

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| Phelps County R-3 | Board Approved Date: Modification Date: |
| Subject: 7 th Math | Class Name: Basic Math |
| Unit: Data and Probability--Probability | Duration: 1.5 weeks |
| Show-Me Standards Content: MA 3, 6 Show-Me Standards Process: 3.3 | |
| Grade Level Expectations: DP 04.A.07 | |
| Benchmarks: <ul style="list-style-type: none"> • Understand and apply basic concepts of probability. | Performance Indicators(Local Objective): <ol style="list-style-type: none"> 1. Use models to compute the probability of an event. |

Activities and Assessments:

1. Students will complete assignments from the seventh grade level math book as well as assignments from other resources.
2. Real-World Components—Students will complete word problems dealing with real-world issues.
3. Students will keep a study guide spiral notebook. Students will keep notes from each lesson in the notebook and use it as a reference during assignments and a study guide for test.
4. Students will keep a lab spiral notebook. Students will record results from Math Labs, answer questions pertaining to Math Labs keep record of work completed at Study Island labs, and keep graph of progress in Friday’s 3-minute multiplication drills
5. Probability and Prediction—Students will design test, make predictions, and determine probability. They can make sample trees for this.
6. Story Problems with Combinations—Students will use guidelines to write story problems involving the combination of objects.
7. Predicting with Playing Cards—Students will use a set of playing cards and a sample space to predict which cards will be drawn next from a stack. A whole deck may be used or a smaller amount of cards.

Assessments:

Chapter test, quizzes, daily work, observations of students during activities to determine understanding, lab entries, performance assessment (Study Island).

Resources:

Math textbook: *Mathematics Applications and Concepts Course 2*, Glencoe
Mathematics Applications and Concepts Course 2, Resource Masters
 Study Island: www.studyisland.com

Materials: playing cards

Relevant Links: <http://www.teachers.net/lessons/posts/1389.html>