

Managed Curriculum



Eighth Grade Mathematics

2011-2012 School Year



John White, RSD Superintendent

EIGHTH GRADE MATHEMATICS



LEAP TEST SPECIFICATIONS

Number & Number Relations	20%
Geometry	20%
Measurement.....	15%
Data Analysis, Probability, Discrete Math.....	20%
Algebra.....	15%
Patterns, Relations, & Functions.....	10%
Number of GLEs for Grade 8.....	48

The 2011-2012 Managed Curriculum

Teaching Mathematics for Meaning and Understanding

Research on teaching and learning document the need for educators to alter present teaching practices in order to close the achievement gap and to support improved student achievement in mathematics. The research message is strong: ***Teach for meaning initially, or risk never getting students beyond a superficial understanding that leaves them unprepared to apply their learning.*** Simply stated, educators can incorporate the following steps to put the research into practice.

- Promote students' discussion of making meaning by posing open-ended questions: *Why do you think that? Can you explain your reasoning? How do you know that?*
- Make explicit connections and incorporate pictures, concrete materials, and role playing as part of instruction so that students have multiple representations of concepts and alternative paths to developing understanding.
- Avoid instruction focused on teaching a single correct approach to arrive at a single correct answer.

The following list of best practices in mathematics is suggested to aid in the teaching and learning process daily.

- Use manipulative materials
- Use cooperative group work
- Discuss mathematics
- Question and make conjectures
- Justify thinking
- Write about mathematics
- Use a problem-solving approach to instruction
- Integrate content
- Use calculators and computers
- Be a facilitator of learning
- Assess learning as an integral part of instruction
- Use data to guide/drive instruction

Pacing for Content Coverage

There is much mathematics content to review and teach in the course of a year. The expectation is that the pace is set at the beginning of the school year. Students generally adjust to the pace of the teacher. This will ensure that *ALL* of the concepts will be covered. There may be times when it will seem difficult to maintain the pace. But it is important to understand that a slow pace can make it too easy to lose perspective and difficult to relate ideas. If you spend too much time on certain lessons, you will find that your slowest students may have learned more by having gone through content slowly, but the other students may have learned less. The wise teacher strikes a balance, goes quickly enough to keep things interesting but slowly enough to have time for explanations. Make adjustments for students with special needs: individualized lessons, learner center activities, additional homework and/or extended day/week/year opportunities.

Key Concepts Grade 8

Grade 8 students are expected to work with integers, fractions, decimals and percents. The term rational numbers is explored and used to describe the number set. Estimation skills involving are utilized when actual measurements are not needed. This skill is extended to measurement in the customary and metric systems. In data, it is expected that students read, interpret, and summarize information in bar, line and circle graphs and make predictions based on trends. They should also construct, label, and scale bar and line graphs and plot data sets on them. In measurement, real-world problems require students to measure, record and communicate when solving problems with perimeter, area and volume. In patterns, students should be able to discern, formulate, describe and extend number and shape patterns and able to apply pattern recognition to determining inputs or outputs from function machines.

Student readiness for algebra is important and plays an important role in high school courses.

Vocabulary development is extremely important. Many terms and words used in mathematics are not typical and not used in everyday communications.

GLEs *not* directly assessed are: N-6-M, N-7-M, A-3-M, G-4-M, P-2-M . Refer to the Louisiana Guide to Statewide Assessment for further information regarding assessment.

Opening of School Introductory Unit

<p>W E E K 1</p>	<p>Teachers should use this unit to:</p> <ul style="list-style-type: none">▪ develop classroom culture and establish classroom routines.▪ administer Pre test to determine students' strengths and weaknesses▪ introduce and practice using calculators with meaningful activities▪ introduce and practice problem solving skills and strategies▪ in traduce and practice use test taking strategies <p>LEAP Note: In grade 8, there are 48 GLEs to be covered. The test at this grade is a Criterion Reference Test (CRT). There are 3 sections with 64 questions (60 multiple choice and 4 constructed responses for a total of 76 points). Please refer to the Assessment Guide for test specifications and sample test items.</p>	<p><u>Suggested Resources</u></p> <ul style="list-style-type: none">▪ CHAMP Module 4▪ Guide to Problem Solving▪ Guide to Test Taking▪ Calculator Practice▪ Louisiana Guide to Statewide Assessment
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UNIT 1: Rational Numbers, Measures, and Models

Unit Description

This unit focuses on number theory and the use of rational numbers in problem-solving contexts. Order of operations is reviewed in situations involving fractions, decimals, and integers. Circle graphs are created based on the central angle measurements to display data sets.

Student Understandings

The student uses fractions, decimals, and integers in the context of problem-solving settings. Students also revisit the order of operations while working with rational numbers. They use the measurement of the central angle to calculate fractional parts of the circle for circle graphs.

Guiding Questions

Can students...

- compare rational numbers using symbolic notation as well as use position on a number line?
- recognize, interpret, and evaluate problem-solving contexts with rational numbers?
- use the order of operations correctly in interpreting the values of expressions with parentheses?
- identify the measurement of angles from given fractions based on the central angle of a circle to create a circle graph?

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
1 3 6	<p>Students will:</p> <ul style="list-style-type: none"> ▪ compare rational numbers using symbolic notations as well as use position on a number line. <p style="text-align: center;">*****</p> <p>*LEAP Note: Content limits, as per LEAP Assessment Guide, specifies</p> <ul style="list-style-type: none"> ❖ whole numbers through one million (in standard notation or words) <p><u>Teaching Note:</u> This unit is important to the work students do as they begin to prepare for algebra concepts. In teaching this unit, students may need to review many prerequisite skills. Plan accordingly and use interventions as needed.</p>	<p>rational number least</p> <p>common multiple least</p> <p style="text-align: center;">common denominator</p> <p>standard notation</p>	<p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 1, 5, 7, 9, 10, 11, <p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 196-300 and pp. 236, 306 ▪ Unit Project: LCC Activity 12 <p><u>*include review activities to address LEAP !</u></p> <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
3	Students will: <ul style="list-style-type: none"> ▪ recognize, interpret, and evaluate problem-solving contexts with rational numbers. <p style="text-align: center;">*****</p> <p><i>*Teaching Note:</i> Be sure to discuss rational numbers as a larger set of numbers that include whole numbers; include the different ways whole numbers may be written (i.e. in fraction form, etc.)</p>	reciprocals multiplicative inverse	LCC Activities: <ul style="list-style-type: none"> ▪ 7, 9 PH 3: <ul style="list-style-type: none"> ▪ pp. 202-204 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
5	Students will: <ul style="list-style-type: none"> ▪ use the order of operations correctly in interpreting the values of expressions with parentheses. <p style="text-align: center;">*****</p> <p><i>*LEAP Note:</i> Content limits, as per LEAP Assessment Guide, specifies:</p> <ul style="list-style-type: none"> ❖ any of the four operations with integers ❖ any of the four operations with fractions (denominators 2-12) ❖ any of the four operations with decimal numbers to ten-thousandths place 	variable algebraic expressions integer fraction decimal	PH 3: pp. 6-10 LCC Activities: <ul style="list-style-type: none"> ▪ 2, 3, 4 <p><u>*include Review Activities to address LEAP</u></p> Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
36	Students will: <ul style="list-style-type: none"> ▪ identify the measurement of angles from given fractions based on the central angle of a circle to create a circle graph. 	angle circle graph central angle	PH 3: pp. 563-568 LCC Activities: <ul style="list-style-type: none"> ▪ 6, 8 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
<p><i>Teacher Reflection on Content Coverage</i> Can students...</p> <ul style="list-style-type: none"> • compare rational numbers using symbolic notation as well as use position on a number line? • recognize, interpret, and evaluate problem-solving contexts with rational numbers? • use the order of operations correctly in interpreting the values of expressions with parentheses? • identify the measurement of angles from given fractions based on the central angle of a circle to create a circle graph? 			

UNIT 2: Rates, Ratios, and Proportions

Unit Description

This unit focuses on proportional relationships and solutions of problems involving rates, ratios and percentages. This level of proficiency includes work with similar triangles and the lengths of corresponding sides. There is some exploration of combinations and permutations in this unit.

Student Understandings

The student uses fractions, decimals, and integers in the context of problem-solving settings. Students also revisit the order of operations while working with rational numbers. They use the measurement of the central angle to calculate fractional parts of the circle for circle graphs.

Guiding Questions

Can students...

- compare rational numbers using symbolic notation as well as use position on a number line?
- recognize, interpret, and evaluate problem-solving contexts with rational numbers?
- use the order of operations correctly in interpreting the values of expressions with parentheses?
- identify the measurement of angles from given fractions based on the central angle of a circle to create a circle graph?

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
8	<p>Students will:</p> <ul style="list-style-type: none"> ▪ set up and solve percentage problems including those with percentages less than 1% and greater than 100%. <p style="text-align: center;">*****</p> <p><u>LEAP Note:</u> Content limits, as per LEAP Assessment Guide, specifies:</p> <ul style="list-style-type: none"> ❖ decimal and percent equivalents of common fractions (denominators 2,3,4,5,8, and 10). ❖ percent equivalents of decimal fractions 	<p>percent</p> <p>simplify</p>	<p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 314-319 <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 1, 2, 3, 4 ▪ Unit Project: Activity 7 <p>**include Review Activities to address LEAP</p> <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
9	<p>Students will:</p> <ul style="list-style-type: none"> ▪ set up and solve percent of change problems (% increase, % decrease). 	<p>percent percent</p> <p>increase percent</p> <p>decrease</p>	<p>PH 3: pp. 326-330</p> <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 5, 6, 7 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
7 29	<p>Students will:</p> <ul style="list-style-type: none"> ▪ set up and solve proportions representing real-life problems including those with fractions, decimals, and integers. ▪ interpret, model, set up, and solve proportions linking the measures of sides of similar triangles. 	ratio proportion cross product similar figures congruent figures congruent angles corresponding sides	PH 3: <ul style="list-style-type: none"> ▪ pp. 258-263 ▪ pp. 265-266 LCC Activities: <ul style="list-style-type: none"> ▪ 8, 9, 10 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math , FASTT Math
39 42 43	<p>Students will:</p> <ul style="list-style-type: none"> ▪ apply concepts of combinations and permutations and identify when order is important. 	probability tree diagram Fundamental counting principle outcomes permutations factorial combination Pascal's triangle	PH 3: <ul style="list-style-type: none"> ▪ pp. 595-605 LCC Activities: <ul style="list-style-type: none"> ▪ 11, 12, 13 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
<p>Teacher Reflection on Content Coverage <i>Can students...</i></p> <ul style="list-style-type: none"> • compare rational numbers using symbolic notation as well as use position on a number line? • recognize, interpret, and evaluate problem-solving contexts with rational numbers? • use the order of operations correctly in interpreting the values of expressions with parentheses? • identify the measurement of angles from given fractions based on the central angle of a circle to create a circle graph? 			

Unit 3: Geometry and Measurement

Unit Description

The content of this unit focuses on the properties of transformations on the coordinate grid; the relationships among angles formed by parallel lines; the use of nets to help students visualize three dimensional solids; and applications of the Pythagorean Theorem and its converse.

Student Understandings

Students grasp the meaning of congruence and measurement. They can apply transformations and identify properties that remain the same as figures undergo transformations in the plane. Students see the links between planar nets and their corresponding 3-D figures and can explain relationships between vertices, edges, and faces of polyhedra. Students can provide one justification of the Pythagorean theorem and its converse and apply both in real-life applications.

Guiding Questions

Can students...

- use transformations (reflections, translations, rotations) to match figures and note the properties of the figures that remain invariant under transformations?
- define and apply the terms *measure*, *distance*, *bisector*, *angle*, *bisector*, *angle bisector* and *perpendicular bisector* appropriately and use them in discussing figures synthetically and with reference to coordinates as well?
- draw and use planar nets to construct polyhedra, noting the relationships of sides, edges, and vertices?
- discuss similar and congruent figures, and make and interpret scale drawings of figures?
- state and apply the Pythagorean theorem and its converse in finding the lengths of missing sides of right triangles and showing triangles are right respectively?
- use the coordinate plane to represent models of real-life problems?

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
23 24 25 26	Students will: <ul style="list-style-type: none"> ▪ use the coordinate plane to represent models of real-life problems ▪ use transformations (reflections, translations, rotations) to match figures and note the properties of the figures that remain invariant under transformations 	coordinate plane quadrant x-axis y-axis transformation reflection translation rotation	PH 3: <ul style="list-style-type: none"> ▪ Chapter 3, pp. 117-119. ▪ pp. 157-174 LCC Activities: <ul style="list-style-type: none"> ▪ 13, 1, 2 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
23	Students will: <ul style="list-style-type: none"> ▪ define and apply the terms measures, distance, bisector, angle bisector and perpendicular bisector appropriately and use them in discussing figures synthetically and with reference to coordinates as well. 	measures distance bisector angle bisector perpendicular bisector	PH 3: 454-463 LCC Activities: 3 , 10 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
30 24	Students will: <ul style="list-style-type: none"> ▪ draw and use planar nets to construct polyhedra, noting the relationships of sides, edges, and vertices. ▪ discuss similar and congruent figures and make and interpret scale drawings of figures. 	polyhedra sides edges vertices similar figures congruent figures scale drawing	PH 3: <ul style="list-style-type: none"> ▪ pp. 265-269, pp. 420-425 LCC Activities: <ul style="list-style-type: none"> ▪ 11, 12, 13, 6, 7, 8 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
31	Students will: <ul style="list-style-type: none"> ▪ state and apply the Pythagorean theorem and its converse in finding the lengths of missing sides of right triangles and showing triangles are right respectively 	Pythagorean theorem right triangle	PH 3: <ul style="list-style-type: none"> ▪ pp. 226-232 LCC Activities: <ul style="list-style-type: none"> ▪ 9, 10, 13, 6, 7 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

Teacher Reflection on Content Coverage

Can students...

- use transformations (reflections, translations, rotations) to match figures and note the properties of the figures that remain invariant under transformations?
- define and apply the terms *measure*, *distance*, *bisector*, *angle*, *bisector*, *angle bisector* and *perpendicular bisector* appropriately and use them in discussing figures synthetically and with reference to coordinates as well?
- draw and use planar nets to construct polyhedra, noting the relationships of sides, edges, and vertices?
- discuss similar and congruent figures, and make and interpret scale drawings of figures?
- state and apply the Pythagorean theorem and its converse in finding the lengths of missing sides of right triangles and showing triangles are right respectively?
- use the coordinate plane to represent models of real-life problems?

Unit 4: Measurement and Geometry

Unit Description

In this unit, basic 2- and 3-dimensional shapes, their surface areas, and their volumes are explored. Conversions of volume within the same system and comparisons of relative sizes of units of volume across systems are made. Density, velocity and monetary conversions are connected to algebraic relationships. Analyses of rates of change of sides, areas, and volumes of similar figures are also revisited. Such analyses are also applied to the lengths of sides, areas, and volumes of similar figures due to changes in one or more of the dimensions. Prediction based on data patterns are made in single and multiple event probabilities are explored.

Student Understandings

Students develop, understand, and apply the surface area and volume formulas for prisms, cylinders, and pyramids. Students begin to understand and apply these concepts to the cone, but they are not mastered at this level. They also select units and estimate the surface area and volumes/capacity of specified figures. They are able to compare and contrast the relative measures of objects or quantities measured in the metric and customary systems, as well as convert between units of volume in the *same* system. Working with derived units, such as density, velocity, and international monetary conversion rates, the students can discuss the nature of rates of change within such units. Students also find single and multiple event probabilities. Students can identify data patterns and make predictions from these patterns.

Guiding Questions

Can students...

- describe the nature of surface area, volume, and capacity as measures of size?
- apply and interpret the results of surface area and volume considerations applied to prisms, cylinders, pyramids, and cones?
- make appropriate estimates of volume and capacity and use these in applications?
- determine the effects of a change in linear scale on perimeter, area, and volume in similar figures?
- discuss the rate of change of velocity in terms of speed and direction?
- find the density of a substance?
- make predictions from data patterns ?
- find single and multiple event probability?

<p>17 18 19 20 21 22</p>	<p>Students will:</p> <ul style="list-style-type: none"> ▪ describe the nature of surface area, volume, and capacity as measures of size. ▪ apply and interpret the results of surface area and volume considerations applied to prisms, cylinders, pyramids, and cones. ▪ make appropriate estimates of volume and capacity and use these in applications. 	<p>volume surface area prism cylinders cone pyramid</p>	<p>PH 3: pp. 488-463 LCC Activities: <ul style="list-style-type: none"> ▪ 3, 4, 5, 6, 7,10, 13 ▪ Unit Project: LCC Activity 6 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math. FASTT Math </p>
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GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
32 33 48	Students will: <ul style="list-style-type: none"> ▪ determine the effect of a change in linear scale on perimeter, area, and volume in similar figures. 	perimeter scale similar figures	PH 3: <ul style="list-style-type: none"> ▪ pp. 271-285; pp. 278-286; LCC Activities: <ul style="list-style-type: none"> ▪ 1, 2, 11, 13, 12 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
18 31	Students will: <ul style="list-style-type: none"> ▪ discuss the rate of change of velocity in terms of speed and directions. ▪ find the density of a substance. 	rate of change density	PH 3: pp.134 - 135 LCC Activities: 13, 14, 17 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
39 43 45	Students will: <ul style="list-style-type: none"> ▪ make predictions from data patterns. ▪ find single and multiple event probabilities. 	combination complement dependent event experimental probability odds against odds in favor permutation theoretical probability independent event	PH 3: <ul style="list-style-type: none"> ▪ pp. 557-562 ▪ pp. 588-615 LCC Activities: 15 ,3 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
<p>Teacher Reflection on Content Coverage <i>Can students...</i></p> <ul style="list-style-type: none"> • describe the nature of surface area, volume, and capacity as measures of size? • apply and interpret the results of surface area and volume considerations applied to prisms, cylinders, pyramids, and cones? • make appropriate estimates of volume and capacity and use these in applications? • determine the effects of a change in linear scale on perimeter, area, and volume in similar figures? • discuss the rate of change of velocity in terms of speed and direction? • find the density of a substance? • make predictions from data patterns? • find single and multiple event probability ? 			

Unit 5: Algebra, Integers, and Graphing

Unit Description

The unit focus is on determining relationships of patterns. Representations of these relationships are made using tables, graphs and equations. Equation solutions and descriptions of how rates of change in one variable affect the rate of change in the other variable are also explored as graphs are analyzed and slopes are discussed. The collecting and analyzing of data into appropriate displays including box-and-whiskers plots are explored. The unit includes explanations of factors that affect measures of central tendency.

Student Understandings

Students show a strong command of working with positive whole number exponents in evaluating expressions, in computing with scientific notation, or in representing quantities in exponential growth settings. Students are able to use formulas for perimeter/circumference, area, surface area, and volume settings flexibly and solve for missing values in linear formulas, such as temperature conversion formulas. They can discuss rates of change, such as found in the graphs of linear relationships. Students develop an intuitive grasp of slope and will be able to compare and contrast slope in linear settings. They are capable of shifting among representations and discussing the nature of such representations for functions as tables, graphs, equations, and in verbal and written formats. Students determine which display is appropriate for given situations and find the information from a data set that is needed to make a box-and-whiskers plot. They also determine how various factors affect measures of central tendency.

Guiding Questions

Can students...

- apply positive whole number exponents in evaluating expressions and in computing with scientific notation?
- apply the order of operations in evaluating expressions involving fractions, decimals, integers, and real numbers along with parentheses and exponents?
- shift among written, verbal, numerical, symbolic, and graphical representations of functions?
- solve and graph solutions of multi-step linear equations and inequalities?
- explain and form generalizations about how rates of change work in linear and exponential settings?
- describe and compare rates of change for situations where change is constant or varying?
- construct a table of values for a given equation and graph it on the coordinate plane?
- determine which display is appropriate for a given situation?
- create a box-and-whiskers plot and explain the information that it shows?
- take a data set and determine the affect an added number will have on the different measures of central tendency?

GLE's	Objectives	Vocabulary	Suggested Resources and LCC Activities
2 4 5 10 39	Students will: <ul style="list-style-type: none"> ▪ apply positive whole number exponents in evaluating expressions and in computing with scientific notation. ▪ apply the order of operations in evaluating expressions involving fractions, decimals, integers, and real numbers along with parentheses and exponents. <p style="text-align: center;">*****</p> <p>LEAP Note: Content limits, as per LEAP Assessment Guide, specifies: calculating squares, cubes, or other powers, and finding square roots.</p>	scientific notation expanded form exponent base variable equation exponent	PH 3: <ul style="list-style-type: none"> ▪ pp. 61-68 ▪ pp. 362- 393 LCC Activities: <ul style="list-style-type: none"> ▪ 12, 13, 15 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
11 12 13 14	<p>Students will:</p> <ul style="list-style-type: none"> ▪ shift among written, verbal , numerical, symbolic, and graphical representations of functions. ▪ solve and graph solutions of multi-step linear equations and inequalities. 	<p>equation</p> <p>inequality</p>	<p>PH 3: pp. 69 - 113</p> <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 15, 16,17, 7 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
14 15 16 34 35 37 39 40	<p>Students will:</p> <ul style="list-style-type: none"> ▪ explain and form generalizations about how rates of change work in linear and exponential settings. ▪ describe and compare rates of change for situations where change is constant or varying. ▪ construct a table of values for a given equation and graph it on the coordinate plane. 	<p>rate of change</p> <p>coordinate plane</p> <p>linear function</p> <p>constant</p>	<p>PH 3: pp. 128-151</p> <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 2, 3, 4, 5 6, 8, 11, 16, 17 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
37 39 43 45	<p>Students will:</p> <ul style="list-style-type: none"> ▪ determine which display is appropriate for a given situation. ▪ create a box-and -whiskers plot and explain the information that it shows. ▪ take a data set and determine the effect an added number will have on a different set of central tendency. 	<p>box-and –whiskers plot</p> <p>measures of central tendency</p>	<p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 533-555 ▪ LCC Activities: <ul style="list-style-type: none"> ▪ #8 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

Teacher Reflection on Content Coverage

Can students...

- apply positive whole number exponents in evaluating expressions and in computing with scientific notation?
- apply the order of operations in evaluating expressions involving fractions, decimals, integers, and real numbers along with parentheses and exponents?
- shift among written, verbal, numerical, symbolic, and graphical representations of functions?
- solve and graph solutions of multi-step linear equations and inequalities?
- explain and form generalizations about how rates of change work in linear and exponential settings?
- describe and compare rates of change for situations where change is constant or varying?
- construct a table of values for a given equation and graph it on the coordinate plane?
- determine which display is appropriate for a given situation?
- create a box-and-whiskers plot and explain the information that it shows?
- take a data set and determine the affect an added number will have on the different measures of central tendency?

Unit 6: Growth and Patterns

Unit Description

This unit examines the nature of changes to the input variables in function settings through the use of tables and sequences. There is emphasis on recognizing and differentiating between linear and exponential change and developing the expression for the n th term for a given arithmetic or geometric sequence.

Student Understandings

Students recognize the nature of linear growth and exponential growth in terms of constant or multiplicative rates of change and can use this to test their generalizations. They understand that a table, a graph, an algebraic expression, or a verbal description can be used as different representations of the same sequence of numbers.

Guiding Questions

Can students...

- differentiate between linear and exponential growth patterns and discuss each verbally, numerically, graphically, and symbolically?
- develop and generalize the rule for finding the n th term for a sequence of numbers?
- sketch and interpret a trend line?

GLE's	Objectives	Vocabulary	Suggested Resources and LCC Activities
<p>13 14 38 39 46 47</p>	<p>Students will:</p> <ul style="list-style-type: none"> ▪ differentiate between linear and exponential growth patterns and discuss each verbally, numerically, graphically, and symbolically. ▪ develop and generalize the rule for finding the nth term for a sequence of numbers. ▪ sketch and interpret a trend line. 	<p>growth patterns</p> <p>sequence</p>	<p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 558 ▪ pp. 663-667 <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 1-9 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

Teacher Reflection on Content Coverage

Can students...

- differentiate between linear and exponential growth patterns and discuss each verbally, numerically, graphically, and symbolically?
- develop and generalize the rule for finding the n th term for a sequence of numbers?
- sketch and interpret a trend line?

Unit 7: What Are The Data?

Unit Description

This unit focuses on representations of data using appropriate graphs and displays. Concepts of range, quartiles and shapes of distributions are explored as appropriate graphic displays are explored.

Student Understandings

Students can represent and interpret one or two variable data, making graphs to illustrate it by hand or using technology where available. Students can discuss variability in data through the nature of its spread, using range and quartiles, and illustrate the data with stem-and-leaf and box-and-whisker plots. For two-variable data, students can graph the data on the coordinate plane and draw and interpret trend lines for the data set. In discussing distributions, students should be able to note the effect that the shapes of different distributions have on measures of central tendency (mean, median, and mode). Finally, students should be able to analyze the validity projections and generalizations made about patterns in different data sets.

Guiding Questions

Can students...

- select and defend their choice of graphs to represent data sets for one- or two-variable data?
- discuss the nature of variability and graphically illustrate it with stem-and-leaf and box-and-whisker plots, as well as through the use of range and quartiles?
- graph two variable data on a coordinate graph and draw and discuss trend lines for its pattern, if any?
- describe the effect that various shapes of distributions have on the values of their mean, median, and mode(s)?
- analyze generalizations and claims made on the basis of data analyses and offer discussions of the relative validity of such claims?

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
36 37	Students will: <ul style="list-style-type: none"> ▪ select and defend their choice of graphs to represent data sets for one or two variable data. ▪ discuss the nature of variability and graphically illustrate it with stem-and-leaf and box-and-whisker plots, as well as through the use of range and quartiles. 	box-and-whisker plot range stem- and-leaf quartiles	PH 3: <ul style="list-style-type: none"> ▪ pp. 552 and pp. 563-568 LCC Activities: <ul style="list-style-type: none"> ▪ 2, 4, 5, 7 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
<p>38 34 35 39</p>	<p>Students will:</p> <ul style="list-style-type: none"> ▪ graph two variable data on a coordinate graph, draw, and discuss trend lines for its pattern, if any. ▪ select and defend their choice of graphs to represent data sets for one or two variable data. 	<p>coordinate plane</p> <p>trend line</p>	<p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 557-562 <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 2, 8 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
<p>34 39</p>	<p>Students will:</p> <ul style="list-style-type: none"> ▪ describe the effect that various shapes of distribution have on the values of their mean, median, and mode(s). ▪ analyze generalizations and claims made on the basis of data analyses and offer discussions of the relative validity of such claims. 		<p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 33-38 and pp. 557-562 <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 1, 3, 4, 8, 9 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math
<p>Teacher Reflection on Content Coverage</p> <p>Can students...</p> <ul style="list-style-type: none"> • select and defend their choice of graphs to represent data sets for one- or two-variable data? • discuss the nature of variability and graphically illustrate it with stem-and-leaf and box-and-whisker plots, as well as through the use of range and quartiles? • graph two variable data on a coordinate graph and draw and discuss trend lines for its pattern, if any? • describe the effect that various shapes of distributions have on the values of their mean, median, and mode(s)? • analyze generalizations and claims made on the basis of data analyses and offer discussions of the relative validity of such claims? 			

Unit 8: Examining Chances

Unit Description

This unit examines sampling with and without replacement and the need for randomness in statistical situations and how this affects games of chance. Permutations and combinations are used in situations that describe counts for elementary ordering and grouping. Single- and multiple-event probability situations explore the role of mutually exclusive, independent, and non-mutually exclusive, dependent events.

Student Understandings

Students' understanding of choices and chances extends to include the role of randomness in sampling and surveys, as well as for games of chance. They can analyze the nature of independent, mutually exclusive and dependent, non-mutually exclusive events. They can apply permutations to analyze orderings with and without replacements and combinations and to examine the number of r-sized groups that can be formed from n-objects or individuals. They can calculate, illustrate, and apply single- and multiple event probabilities for a wide variety of events.

Guiding Questions

Can students...

- recognize and discuss ways that randomness contributes to surveys, experiments, and games of chance?
- determine the number of orderings (permutations) or combinations (groupings) that can occur under given conditions?
- calculate and interpret single- and multiple-event probabilities in a wide variety of situations, including independent, mutually exclusive, and dependent, non-mutually exclusive settings?
- suggest ways of minimizing bias in sampling or surveys through the use of random samples?

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
41	<p>Students will:</p> <ul style="list-style-type: none"> ▪ recognize and discuss ways that randomness contributes to surveys, experiments, and games of chance. <p style="text-align: center;">*****</p> <p>Teaching Note: Understanding <i>chance</i> is better demonstrated by having students generate their own data using number generators or using virtual tools on the web.</p>	<p>survey</p> <p>games of chance</p> <p>randomness</p> <p>number generators (education term for die, cards, etc)</p>	<p>PH 3:</p> <ul style="list-style-type: none"> ▪ pp. 620-629 <p>LCC Activities:</p> <ul style="list-style-type: none"> ▪ 1, 9, 10 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math

GLEs	Objectives	Vocabulary	Suggested Resources and LCC Activities
42 43	Students will: <ul style="list-style-type: none"> ▪ determine the number of orderings (permutations) or combinations (groupings) that can occur under given conditions. 	permutation combination	PH 3: pp. 595-604 and pp. 628 LCC Activities: <ul style="list-style-type: none"> ▪ 2, 3, 4 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ,FASTT Math
44 45	Students will: <ul style="list-style-type: none"> ▪ calculate and interpret single- and multiple-event probabilities in a wide variety of situations, including independent, mutually exclusive, and dependent, non-mutually exclusive settings. ▪ suggest ways of minimizing bias in sampling or surveys through the use of random samples. 	independent event dependent event	PH 3: <ul style="list-style-type: none"> ▪ pp. 349-354 ▪ pp. 591-631 LCC Activities: 5, 6, 7, 8 Everyday Counts Technology: <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math, FASTT Math
<p><i>Teacher Reflection on Content Coverage</i> <i>Can students...</i></p> <ul style="list-style-type: none"> • recognize and discuss ways that randomness contributes to surveys, experiments, and games of chance? • determine the number of orderings (permutations) or combinations (groupings) that can occur under given conditions? • calculate and interpret single- and multiple-event probabilities in a wide variety of situations, including independent, mutually exclusive, and dependent, non-mutually exclusive settings? • suggest ways of minimizing bias in sampling or surveys through the use of random samples? 			

LEAP Practice and Readiness

	<p>Students will:</p> <ul style="list-style-type: none"> ▪ review concepts and skills as indicated by data collected from Benchmark Assessments. ▪ review and practice problem solving skills and strategies to solve real-life problems. ▪ review and practice test taking strategies. ▪ review and practice writing in mathematics strategies for constructed response problems. 		<p>Select review activities based upon the skills identifies from Benchmark Assessments.</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ First In Math ▪ FASTT Math ▪ MATH eTOOLS@ ▪ TAKE IT TO THE NET@ <p>Benchmark Tests La Assessment Guide, Pass on Paper</p>
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**Readiness For High School Algebra
Algebra 1 Part I : Variables and Numeric Relationships**

Objectives	Vocabulary	Suggested Resources and LCC Activities
<p>Students will:</p> <ul style="list-style-type: none"> ▪ use order of operations and the basic properties(i.e. associative, commutative, and distributive) when performing computations and collecting like terms in expressions. ▪ correctly evaluate numeric and algebraic expressions involving rational numbers. ▪ use and apply scientific notation in representing numbers and solving problems. ▪ recognize functions in graphical, numerical, tabular, and verbal forms. 	<p>commutative property associative property distributive property like terms algebraic expression function</p>	<p><i>Algebra I Part I UNIT I: Variables and Numeric Relationships</i></p> <ul style="list-style-type: none"> ▪ LCC Activities: 1-12 <p>Everyday Counts</p> <p>Technology:</p> <ul style="list-style-type: none"> ▪ Take it to the NET/ www.PHSchool.com ▪ First In Math ▪ FASTT Math