GLENCOE CORRELATION

MATHEMATICS: APPLICATIONS AND CONNECTIONS, COURSE 1

OHIO

Model Curriculum and Mathematics Proficiency Outcomes

OBJECTIVES	LESSON REFERENCES
OHIO MODEL CURRICULUM	
I. Strand One: *Patterns, Relations, and Functions* The student will be able to. . .	
1. build simple functions using concrete models and generate a corresponding rule.	12-5A, 12-5
2. explore the relation between doubling the side of a square and/or other regular figures and the corresponding increase in area.	4-4
3. explore mathematical expressions of relations observed in other curricular domains.	3-3, 4-3, 4-9
4. explore and describe in words simple and complex patterns in history and language arts.	2-2, 3-2, 5-9
II. Strand Two: *Problem-Solving Strategies* The student will be able to. . .	
1. extend the application of previously learned strategies.	3-6A, 6-2B, 8-3A, 12-4B
2. expand the repertoire of appropriate notations and methods for symbolizing a problem statement and the solution process.	7-8A, 10-5A, 12-4B, 13-2A
3. identify needed and given information in a problem situation as well as irrelevant information.	1-1, 4-5A
4. validate and generalize solutions.	1-1, 3-6A, 4-5A
III. Strand Three: *Numbers and Number Relations* The student will be able to. . .	
1. compute with whole numbers, fractions, and decimals.	1-3, 3-6, 4-1A, 4-1, 4-3A, 4-3, 4-6A, 4-6, 4-7, 6-3, 6-4A, 6-4, 6-5, 6-6, 7-2A, 7-2, 7-3, 7-5A, 7-5, 7-6
2. explore concepts of percent, ratio, and proportions in the context of real-world situations.	8-1, 8-2, 8-4, 8-5
3. use proportions in a wide variety of applications.	8-2, 8-2B, 8-3
4. investigate relations between ratios, proportions, and percents.	8-1, 8-2, 8-4A, 8-4, 8-5
5. round, as appropriate to a problem situation, to any digit.	1-3, 3-4, 4-5

OBJECTIVES	LESSON REFERENCES
6. change freely between fractions and decimals.	5-9, 5-10
7. understand and describe in words the relations between addition, subtraction, multiplication, and division.	11-3, 11-4, 11-5, 11-6
8. understand and describe in words how fractions and decimals expand the whole number system to the system of non-negative rational numbers.	3-3, 5-4A, 5-5, 5-9, 5-10
9. be able to find a number between any two rational numbers.	3-3, 5-8
10. explore and explain when order does and does not make a difference for the four fundamental operations.	1-4, 1-5, 1-5B, 1-6
11. explore Roman numerals and contrast with the base ten number system.	This objective can be covered during teacher/class discussions.
IV. Strand Four: *Geometry* The student will be able to. . .	
1. measure angles in geometric figures and explore relationships between angle measure and other characteristics of the figures.	9-1, 9-6
2. estimate the measure of angles and draw angles that approximate given measures.	9-1, 9-2
3. identify and distinguish among similar, congruent, and symmetric figures.	9-6
4. visualize and show the results of a rotation, translation, reflection, or stretching.	9-6B, 11-8A, 11-8
5. build models of three-dimensional figures, such as pyramids, cones and prisms, with polygonal bases and investigate the properties associated with those figures.	10-4, 10-5A, 10-5, 10-6
6. explore properties that can be used to characterize or contrast different classes of figures.	9-4
7. recognize, classify, and use characteristics of lines and simple two-dimensional figures.	9-4, 9-5
V. Strand Five: *Algebra* The student will be able to. . .	
1. use the distributive property in arithmetic computations.	4-2
2. construct tables to describe a problem situation.	13-2A
3. use a variable to describe a generalization from a problem situation.	1-5A, 1-5, 12-4B
4. symbolize, using variables, the relations between addition, subtraction, multiplication, and division.	1-5A, 1-5
5. explore the use of parentheses on a calculator to change results of a computation.	1-5B
6. solve linear equations using concrete representations.	1-7, 12-1, 12-2, 12-3, 12-4

OBJECTIVES	LESSON REFERENCES
VI. Strand Six: *Measurement* The students will be able to meet any previous objective and, in addition. . .	
1. select and use appropriate units and devices to measure length, area, volume, and weight.	3-2A, 3-2, 4-4, 4-4B, 5-6, 7-7, 10-1, 10-2, 10-3, 10-5
2. explore and use formulas to compute areas and perimeters (circumferences) of common polygons (polygonal regions) and circles (circular regions).	4-4, 7-4, 10-1, 10-2, 10-3
3. convert, compare, and compute with common units of measure within the same measurement system.	3-2, 4-8, 4-9, 5-6, 7-7, 7-7B
4. measure angles using a protractor.	9-1, 9-2
VII. Strand Seven: *Estimation and Mental Computation* The student will be able to. . .	
1. perform and extend the objectives listed in previous grades.	3-5, 4-1, 4-5, 6-2, 7-1, 8-6
2. estimate the sum of several close addends by estimating an average and multiplying the average by the number of values.	3-5
3. estimate the sum or difference of mixed numbers by adding or subtracting the whole numbers and then adding or subtracting the fractions using their closest value, 1, $\frac{1}{2}$, or 1.	6-2
4. estimate the product or quotient of mixed numbers by rounding them to whole numbers.	7-1
5. estimate the product or quotient of decimal numbers by rounding them to a single decimal place and then performing the operation.	4-1, 4-5
6. look for compatibles in multiplication and division to help perform these operations mentally.	4-1, 7-1
7. use estimation to eliminate choices in multiple-choice tests.	1-3, 4-1
VIII. Strand Eight: *Data Analysis and Probability* The student will be able to. . .	
1. collect data and create a circle graph.	2-4, 10-3B
2. explore circle graphs and use them to solve application problems.	2-4, 10-3B
3. read, interpret, and use tables, charts, maps, and graphs to identify patterns, note trends, and draw conclusions.	2-3B, 2-5, 13-2A
4. explore the concept of average and calculate the arithmetic mean and the mode of a given set of numbers.	2-7, 2-8
5. explore changes in the mean and the mode when some data are changed.	2-7

OBJECTIVES	LESSON REFERENCES
6. construct a tree diagram to list alternatives and procedures.	13-4, 13-5
7. read and construct scale drawings.	8-3
8. investigate probabilities for the possible outcomes of a simple experiment.	13-1
9. make predictions of outcomes of experiments based on theoretical probabilities and explain actual outcomes.	13-2, 13-3, 13-5
SIXTH-GRADE PROFICIENCY TEST MATHEMATICS LEARNING OUTCOMES	
1. Apply the relation between doubling the side of a regular figure and the corresponding increase in area.	4-4
2. Determine the rule, identify missing numbers, and/or find the *n*th term in a sequence of numbers or a table of numbers involving one operation or power.	7-8, 7-8B, 12-5
3. Apply appropriate notations and methods for symbolizing the problem statement and solution process.	7-8A, 10-5A, 12-4B, 13-2A
4. Identify needed and given information in a problem situation, as well as irrelevant information.	1-1, 4-5A
5. Validate and/or generalize solutions and problem-solving strategies.	1-1, 3-6A, 4-5A
6. Compute with whole numbers, fractions, and decimals.	1-3, 3-6, 4-1A, 4-1, 4-3A, 4-3, 4-6A, 4-6, 4-7, 6-3, 6-4A, 6-4, 6-5, 6-6, 7-2A, 7-2, 7-3, 7-5A, 7-5, 7-6
7. Find equivalent fractions.	5-4A, 5-4
8. Change freely between fractions and decimals.	5-9, 5-10
9. Order combinations of whole numbers, fractions, and decimals by using the symbols $<$, $\leq$, $>$, $\geq$, and $=$ and/or by placing them on a number line.	3-3, 5-8, 11-2
10. Use ratios and proportions in a wide variety of applications.	8-1, 8-1B, 8-2, 8-2B, 8-3
11. Visualize and show the results of rotation, translation, reflection, or stretching of geometric figures.	9-6B, 11-8A, 11-8
12. Recognize, classify, and/or use characteristics of lines and simple two-dimensional figures including circles; and apply models and properties to characterize and/or contrast different classes of figures including three-dimensional figures.	9-4, 9-5
13. Use the distributive property in arithmetic computations.	4-2
14. Explain and reflect differences between calculators with arithmetic logic and calculators with algebraic logic when symbolizing a keying sequence and identifying the display as each key is pressed.	1-5B

OBJECTIVES	LESSON REFERENCES
15. Use variables to describe arithmetic processes, to generalize arithmetic statements, and to generalize a problem situation.	1-5A, 1-5, 12-4B
16. Determine perimeters, areas, and volumes of common polygons, circles, and solids using counting techniques or formulas.	4-4, 7-4, 10-1, 10-2, 10-3, 10-5
17. Convert, compare, and compute with common units of measure within the same measurement system.	3-2, 4-8, 4-9, 5-6, 7-7, 7-7B
18. Measure angles with a protractor.	9-1, 9-2
19. Apply appropriate strategies to find estimates of sums, differences, products, and quotients of whole numbers (and determine whether the estimate is greater than or less than the exact result).	3-5, 4-1, 4-5, 6-2, 7-1, 8-6
20. Estimate the sum, difference, product, or quotient of decimal numbers by rounding, and the sum, difference, or product of fractions and/or mixed numbers by rounding the fractions to 0, $\frac{1}{2}$, or 1.	4-1, 4-5, 6-2, 7-1
21. Collect data, create a table, picture graph, bar graph, circle graph, or line graph, and use them to solve application problems.	2-2, 2-3, 2-3B, 2-4, 10-3B
22. Read, interpret, and use tables, charts, maps, and graphs to identify patterns, note trends, and draw conclusions.	2-3B, 2-5, 13-2A
23. Apply the concept of average and calculate the arithmetic mean and mode of a given set of numbers.	2-7, 2-8
24. Make predictions of outcomes of experiments based upon theoretical probabilities and explain actual outcomes.	13-2, 13-3, 13-5