

MATH - GRADE 5

Standard	Benchmarks	Assessment	Activities	Resources
2.1 Numbers, Number Systems, and Number Relationships	Use expanded notation to represent whole numbers or decimals. Apply number theory concepts to rename a number quantity. Demonstrate that mathematical operations can represent a variety of problem situation. Use models to represent fractions and decimals. Explain the concepts of prime and composite numbers. Use simple concepts of negative numbers such as on a number line, in counting, and temperature. Develop and apply number theory concepts (e.g., primes, factors, multiples, and composites) to represent numbers in various ways.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets <u>Addison-Wesley Mathematics</u> -Practice supplements, multiple choice and free response tests CCC math worksheets	Use place value charts to billions and thousandths Use multiplication tables Use greatest/largest number games using dice Use crossword number puzzles Abacus activities Use almanac to research/ create data tables Use cuisenaire rods Use hundreds charts Use arrays/manipulatives to study prime/composite numbers Play calculator games "The Game of n" gameboard Play card matching games w/decimals, fractions, whole numbers, and illustrations Numbers lines with whole numbers, decimals, fractions, negative numbers Concentration games	<u>Houghton-Mifflin Math</u> - Grade 5 (Houghton Mifflin) <u>Addison-Wesley Mathematics</u> - Book 5 (Addison-Wesley) Almanacs CCC Math Concepts and Skills Math Investigations (CCC) transparencies Drawing to Learn Tools - <u>Houghton-Mifflin</u>

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Standard	Benchmarks	Assessment	Activities	Resources
2.1 Continued			Bingo games Fraction Flag project Menu Project Domino Game with dominoes read as decimals using base as decimal point to add, subtract decimals Using meter sticks to review fractional parts "Distributive Dash" gameboard "Zip!" counting game - students count by multiples. If student's number is the designated multiple, they call out "Zip!" Factor trees 24 Game	

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Standard	Benchmarks	Assessment	Activities	Resources
2.2 Computation and Estimation	Create and solve word problems involving addition, subtraction, multiplication and division of whole numbers. Develop and apply algorithms to solve word problems that involve addition, subtraction, and/or multiplication with decimals with and without regrouping, fractions and mixed numbers, that include like and unlike denominators. Demonstrate the ability to round numbers. Determine through estimations the reasonableness of answers to problems involving addition, subtraction, multiplication and division of whole numbers. Demonstrate skills for using fraction calculators to verify conjectures, confirm computations, and explore complex problem solving situations.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC Math Worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Investigations Activities <u>Houghton Mifflin Math</u> Number line activities "Shopping Spree" gameboard Cumulative Review pages <u>Houghton Mifflin</u> Problem solving strategy pages <u>Addison-Wesley</u> <u>Houghton Mifflin</u> activity worksheets and alternate strategy worksheets Mind Benders 24 Game	<u>Houghton Mifflin Math</u> - Grade 5 (Houghton Mifflin) <u>Addison-Wesley Mathematics</u> - Book 5 (Addison-Wesley) CCC -Math Concepts & Skills -Math Investigations transparencies

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Standard	Benchmarks	Assessment	Activities	Resources
2.2 Computation and Estimation	Apply estimation strategies to a variety of problems including time and money. Explain multiplication and division algorithms. Select a method for computation and explain why it is appropriate.			

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Standard	Benchmarks	Assessment	Activities	Resources
2.3 Measurement and Estimation	Select and use appropriate instruments and units for measuring quantities such as perimeter, volume, area, weight, time, and temperature. Select and use standard tools to measure the size of figures with specified accuracy, including length, width, perimeter, and area. Estimate, refine, and verify specified measurements of objects. Convert linear measurements within the same system. Add and subtract measurements.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements CCC math worksheets	metric rulers & standard rulers - create graphs, charts to model each metric weights & standard weights thermometers clocks manipulatives to compare <u>Houghton Mifflin Math</u> Investigations Activities graph paper activities geoboard activities unifix cube activities cubic models to represent volume of geometric shapes create metric conversion table with place value chart labeled as tenth, hundredths, etc. map making activity using distance scale	<u>Houghton Mifflin Math</u> - Grade 5 (Houghton Mifflin) <u>Addison-Wesley Mathematics</u> - Book 5 (Addison-Wesley) CCC -Math Concepts & Skills -Math Investigations <u>Houghton Mifflin Math</u> Grade 5 Tool Kit pages transparencies

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Standard	Benchmarks	Assessment	Activities	Resources
2.4 Mathematical Reasoning and Connections	Compare quantities and magnitudes of numbers. Use models, number facts, properties and relationships to check and verify predictions and explain reasoning. Draw inductive and deductive conclusions within mathematical contexts. Distinguish between relevant and irrelevant information in a mathematical problem. Interpret statements made with precise language of logic (i.e., all, every, none, some, or many). Use statistics to quantify issues in social studies and science.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Plotting data on graphs, number lines, timelines Problem solving strategy pages - <u>Addison-Wesley</u> CCC Mathematics Investigations Activities <u>Houghton Mifflin Math</u> Analyzing/comparing data on graphs, tables In put/out put tables Patterns on a hundreds board, multiplication table Work with variables, equations to identify patterns in number sets Mind Benders	<u>Houghton Mifflin Math</u> - Grade 5 (Houghton Mifflin) <u>Addison-Wesley Mathematics</u> - Book 5 (Addison-Wesley) CCC -Math Concepts & Skills -Math Investigations <u>Destinations in Science</u> (Addison-Wesley) <u>Social Studies</u> (Harcourt Brace) transparencies

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Standard	Benchmarks	Assessment	Activities	Resources
2.5 Mathematical Problem Solving and Communication	Develop a plan to analyze a problem, identify the information needed to solve the problem, carry out the plan, check whether an answer makes sense and explain how the problem was solved. Use appropriate mathematical terms, vocabulary, language symbols and graphs to clearly and logically explain solutions to problems. Show ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams and models. Connect, extend, and generalize problem solutions to other concepts, problems, and circumstances in mathematics. Select, use, and justify the methods, materials and strategies used to solve problems. Use appropriate problem solving strategies as solving a simpler problem or drawing a picture or diagram.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Problem Solving Strategy pages - <u>Addison-Wesley</u> Use 5 point checklist - QDPAC (question, data, plan, answer, check) Construct charts, graphs, tables Make posters of mathematical symbols Use graph paper to illustrate answers, draw pictures, diagrams. use a math journal for writing prompts	<u>Houghton Mifflin Math</u> - Grade 5 (Houghton Mifflin) <u>Addison-Wesley Mathematics</u> Book 5 (Addison-Wesley) CCC -Math Concepts & Skills -Math Investigations transparencies
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Standard	Benchmarks	Assessment	Activities	Resources
2.6 Statistics and Data Analysis	Organize and display data using pictures, tallies, tables, charts, bar graphs, and circle graphs. Describe data sets using mean, median, mode and range. Sort data using Venn diagrams. Predict the likely number of times a condition will occur based on the analyzed data. Construct and defend simple conclusions based on data.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Collect data and display on tables, charts, graphs relating to "favorites" Use calculator to compute mean, median, mode of a set of grades Compare students responses to math questions using Venn diagrams Probability games using number cubes, spinners Problem Solving Strategies pages (Addison-Wesley)	<u>Houghton Mifflin Math</u> - Grade 5 (Houghton Mifflin) <u>Addison-Wesley Mathematics</u> - Book 5 (Addison-Wesley) CCC -Math Concepts & Skills -Math Investigations transparencies

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Standard	Benchmarks	Assessment	Activities	Resources
2.7 Probability and Predictions	Perform simulations with concrete devices (dice, spinner, etc.) to predict the chance of an event occurring. Determine the fairness of the design of a spinner. Express probabilities as fractions and decimals. Compare predictions based on theoretical probability and experimental results. Calculate the probability of a simple event. Determine patterns generated as a result of an experiment. Determine the probability of an event involving "and," "or" or "not." Predict and determine why some outcomes are certain, more likely, less likely, equally likely or impossible.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Conduct surveys and analyze data Perform experiments to determine probability use dice, spinners, coins Math roll game Galaxy board game Draw tree diagrams Make organized lists Problem solving strategies <u>Addison-Wesley</u> Spin and Guess game	<u>Houghton Mifflin Math</u> - Grade 5 <u>Addison-Wesley Mathematics</u> - Book 5 CCC -Math Concepts & Skills -Math Investigations transparencies

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Standard	Benchmarks	Assessment	Activities	Resources
2.7 Continued	Find all possible combinations and arrangements involving a limited number of variables. Make a tree diagram and list the elements in the sample space.			

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Standard	Benchmarks	Assessment	Activities	Resources
2.8 Algebra and Functions	Recognize, reproduce, extend, create and describe patterns, sequences and relationships verbally, numerically, symbolically and graphically, using a variety of materials. Connect patterns to geometric relations and basic number skills. Form rules based on patterns (e.g., an equation that relates pairs in a sequence). Use concrete objects and combinations of symbols and numbers to create expressions that model mathematical situations. Explain the use of combinations of symbols and numbers in expressions, equations, and inequalities. Describe a realistic situation using information given in equations, inequalities, tables or graphs.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements -Problem Solving Strategies	Use counters to build growth patterns Draw a sequence with two possible endings Game of n gameboard Integrate compass rose with a hundreds board to create pathways Maze game Dice game using exponents Make equations from data on a table or graph Use geoboards to plot points and figures 4 in a Line game Draw mirror images on grid paper	<u>Houghton Mifflin Math</u> - Grade 5 <u>Addison-Wesley Mathematics</u> - Book 5 CCC -Math Concepts & Skills -Math Investigations transparencies

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Standard	Benchmarks	Assessment	Activities	Resources
2.8 Continued	Select and use appropriate strategies, including concrete materials, to solve number sentences and explain the method of solution. Locate and identify points on a coordinate system. Generate functions from tables of data and relate data to corresponding graphs and functions.			

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Standard	Benchmarks	Assessment	Activities	Resources
2.9 Geometry	Give formal definitions of geometric figures. Classify and compare triangles and quadrilaterals according to sides or angles. Identify and measure circles, their diameters and radii. Describe in words how geometric shapes are constructed. Construct two and three dimensional shapes and figures using manipulatives, geoboards and computer software. Find familiar solids in the environment and describe them. Create an original tessellation. Describe the relationship between the perimeter and area of triangles, quadrilaterals and circles. Represent and use the concepts of line, point, and plane.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	"Escape the Wheel" gameboard Geoboard mapping activities Measure angles Draw angles Create a tessellation Measure diameters and radii Draw geometric figures on graph paper Triangle sort game Make models of solid figures Polygon games (Houghton Mifflin) Cut out symmetrical and congruent shapes use slide, flip, turn to determine congruency of shapes	<u>Houghton Mifflin Math</u> - Grade 5 <u>Addison-Wesley Mathematics</u> - Book 5 CCC -Math Concepts & Skills -Math Investigations transparencies Art teacher Drawing to Learn Tools (Houghton Mifflin)

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Standard	Benchmarks	Assessment	Activities	Resources
2.9 Continued	Define the basic properties of squares, pyramids, parallelograms, quadrilaterals, trapezoids, polygons, rectangles, rhombi, circles, triangles, cubes, prisms, spheres, and cylinders. Analyze simple transformations of geometric figures and rotations of line segments. Identify properties of geometric figures (i.e., parallel, perpendicular, similar, congruent, symmetrical).			

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Standard	Benchmarks	Assessment	Activities	Resources
2.10 Trigonometry	Identify and compare parts of right triangle including right angles, acute angles, hypotenuse, and legs. Create right triangles on a geoboard.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Use protractors to measure angles in triangles to classify them Use geoboards to show different types of triangles Construct a kite using triangles Escape the Wheel gameboard Use calculator to determine a mystery angle	<u>Houghton Mifflin Math</u> - Grade 5 <u>Addison-Wesley Mathematics</u> - Book 5 CCC -Math Concepts & Skills -Math Investigations transparencies "Draw to Learn" tools (HM)

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Standard	Benchmarks	Assessment	Activities	Resources
2.11 Concepts of Calculus	Make comparisons of numbers such as more, less, same, least, most, greater than and less than. Identify least and greatest values represented in bar and circle graphs. Identify maximum and minimum. Describe the relationship between rates of change and time. Estimate areas and volumes as the sums of areas of tiles and volumes of cubes. Describe the relationship between the size of the unit of measurement and the estimate of the areas and volumes.	<u>Houghton Mifflin Math</u> -Scoring rubrics for open-ended problem assessments, observation checklists, module tests -Investigations Activities -Extra practice work, skill worksheets, activity worksheets CCC math worksheets <u>Addison-Wesley Mathematics</u> -multiple choice and free response tests, practice supplements	Play "Greatest No. and Smallest No." games using a die Estimate area of a hand drawn on graph paper Estimate the capacity of several containers of different sizes Use Problem Solving Strategies (compute elapsed time)	<u>Houghton -Mifflin Math</u> - Grade 5 <u>Addison-Wesley Mathematics</u> - Book 5 CCC -Math Concepts & Skills -Math Investigations transparencies <u>Houghton Mifflin Math</u> - Grade 5 Tool Kit

MATH INTERVENTIONS - GRADE 5

Below Basic	Basic	Proficient	Advanced
Direct instruction	Direct instruction	CCC Computer Programs	CCC Computer Programs
Peer tutoring	Peer tutoring	-Math Concepts & Skills	-Math Concepts and Skills
CCC Computer Program -Math Concepts and Skills/Worksheets	CCC Computer Program	-Math investigations	-Math Investigations
Meet The Standards Club	-Math Concepts & Skills/Worksheets	24 Game	<u>Addison-Wesley</u>
Use of cooperative learning strategies	Use of cooperative learning strategies	Mind Benders	-Enrichment worksheets
Golden Sage volunteers for skill reinforcement	Flashcards	<u>Houghton-Mifflin</u>	24 Game
Flashcards for basic facts	Speed drill worksheets	Investigations activities	Mind Benders
Speed drill worksheets	Use of math journals	-Find appropriate resources on the Internet for class projects	<u>Houghton Mifflin</u>
Use of math journals	<u>Addison-Wesley</u> reteaching worksheets		Investigations activities
<u>Addison-Wesley</u> reteaching worksheets	<u>Houghton Mifflin</u> Alternate Strategy worksheets and extra practice pages		-Find appropriate resources on the Internet for class projects
<u>Houghton Mifflin</u> Alternate Strategy worksheets and extra practice pages	Flex grouping		
Flex grouping	Reteaching		
Rewards	Use short-term goals		
Use short-term goals			
Draw to visualize			
Reteach			
Chunking			

MATH RUBRICS - GRADE 5

	Below Basic	Basic	Proficient	Advanced
Knows basic number facts	Scores 0-76 on Addison-Wesley fact tests in 3 minutes or less	Scores 77-84 on Addison-Wesley fact tests in 3 minutes or less	Scores 85-92 on Addison-Wesley fact tests in 3 minutes or less	Scores 93-100 on Addison-Wesley fact tests in 3 minutes or less
Understands math concepts	Demonstrates little or no understanding of concepts in the solution process	Demonstrates limited understanding of concepts in the solution process	Demonstrates satisfactory understanding of concepts in the solution process	Demonstrates advanced understanding of concepts in the solution process
Demonstrates understanding through use of models (for ex. tables, graphs, etc.)	Constructs models that incorrectly represent the problem or are incomplete	Constructs models that are vague or difficult to interpret	Constructs models with minor errors	Constructs accurate and complete models
Computes accurately	Calculates with many major errors (0-76%)	Calculates with frequent errors (77-84%)	Calculates with minor errors (85-92%)	Calculates with few or no errors (93-100%)
Actively participates in discussions and activities	Participates seldom or never with appropriate responses	Participates sometimes with appropriate responses	Participates often with appropriate responses	Participates very frequently with appropriate responses
Uses mental/estimation skills	Uses few or no mental/estimation skills	Uses limited mental/estimation skills	Uses satisfactory mental/estimation skills	Uses advanced mental/estimation skills
Demonstrates the use of problem solving strategies	Shows little or no understanding and does not complete the problem accurately	Shows limited understanding and seldom completes the problem accurately	Shows satisfactory understanding and accurate completion of the problem most of the time	Shows thorough understanding and accurate completion of the problem
Explains and uses mathematical vocabulary	Shows little or no understanding of math vocabulary in written or verbal explanations	Shows limited understanding of math vocabulary in written or verbal explanations	Shows satisfactory understanding of math vocabulary in written or verbal explanations	Shows advanced understanding of math vocabulary in written or verbal explanations
Uses mathematical tool correctly	Seldom or never uses math tools correctly	Sometimes uses math tools correctly	Often uses math tools correctly	Very frequently uses math tools correctly