

# Set Math Priorities

Use Numbers and Operations (Goal 6)

Estimate and Measure (Goal 7)

Solve Problems (Goal 8)

Analyze Size and Shape (Goal 9)

Apply, Analyze, Synthesize (Goal 10)

The following lists are based on the Illinois Learning Standards.

This listing was originally developed by teachers through a grant from the Illinois State Board of Education in 2003. It has been updated in 2005 and 2009. Analyze these lists and data from Benchmark and Scantron tests to identify priorities to emphasize.

The last page lists on-line Math resources.

Go to ISBE.net and <http://www.cmsi.cps.k12.il.us/> to find guides and links to math priorities and resources.

## Kindergarten Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Count, read, write #1-20</li> <li>○ Compare whole numbers</li> <li>○ Recognize words to 10</li> <li>○ Represent numbers using physical models</li> <li>○ Represent number facts to 20</li> <li>○ Add</li> <li>○ Count by 2's, 10's</li> <li>○ Count backwards</li> <li>○ Subtract</li> <li>○ Word problems</li> <li>○ Fractions (whole, half)</li> </ul>	<ul style="list-style-type: none"> <li>○ Measure using nonstandard units</li> <li>○ Estimate</li> <li>○ Time</li> <li>○ Money</li> <li>○ Sizes (big, bigger, small, smaller)</li> </ul>	<ul style="list-style-type: none"> <li>○ Patterns</li> <li>○ Relationships</li> <li>○ Describe patterns and relationships</li> <li>○ Sort</li> <li>○ Classify</li> <li>○ Equal and unequal groups</li> <li>○ Identify problems</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify shapes (circle, square, triangle)</li> <li>○ Classify shapes</li> </ul>	<ul style="list-style-type: none"> <li>○ Collect, organize and display data</li> <li>○ Collect, organize and display with graphs</li> <li>○ Data collection</li> <li>○ Data interpretation</li> </ul>

### First Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Geometric Shapes	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Count and read numerals to 100</li> <li>○ Count backwards from 20</li> <li>○ Count, read and write order of whole numbers to 1,000</li> <li>○ Count by 2's to 50</li> <li>○ Addition of single digits</li> <li>○ Subtraction of single digits</li> <li>○ Addition/subtraction double digits (tens/ones) to 50</li> <li>○ Property of zero</li> <li>○ Addition/subtraction of double digits to 99</li> <li>○ Place value ones, tens, hundreds, thousands</li> <li>○ Compare whole numbers up to 100</li> <li>○ Use words "greater than," "less than," and "equal to."</li> <li>○ Round by 5's and 10's</li> </ul>	<ul style="list-style-type: none"> <li>○ Time hour/ ½ hour</li> <li>○ Money value (penny, nickel, dime)</li> <li>○ Money</li> <li>○ Using ruler inch/feet</li> <li>○ Metric measures</li> <li>○ Liquid measures</li> <li>○ Fractions ½, ⅓, ¼</li> </ul>	<ul style="list-style-type: none"> <li>○ Create stories from which simple addition and subtraction number sentences can be written</li> <li>○ Solve missing addend problems</li> <li>○ Write and draw word problems (basic)</li> <li>○ Solve one and two step problems</li> <li>○ Write and draw word problems using one and two step problems</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify and sort circle, square, triangle, rectangle</li> <li>○ Draw two-dimensional shapes</li> </ul>	<ul style="list-style-type: none"> <li>○ Number lines</li> <li>○ Graphs</li> <li>○ Read and interpret bar graphs</li> </ul>

## Second Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Count 1-500</li> <li>○ Counting by 2's, 3's, 5's, and 10's</li> <li>○ Math facts-number families, doubles</li> <li>○ Number words</li> <li>○ Comparing numbers &gt;, &lt;, =, and unequal.</li> <li>○ Patterns before, after and in between</li> <li>○ Representing equivalent forms.</li> <li>○ Add and subtract one and two digit numbers</li> <li>○ Add and subtract two digits with regrouping</li> <li>○ Comparing whole numbers (odd and even)</li> <li>○ Counting 100-10,000</li> <li>○ Add and subtract (two and three digit with regrouping)</li> <li>○ Addition and subtraction (two and three digit numbers) with and without regrouping</li> <li>○ Multiplication</li> </ul>	<ul style="list-style-type: none"> <li>○ Place value--ones, tens, hundreds</li> <li>○ Money—coins and value</li> <li>○ Time—hour, ½ hour, minutes</li> <li>○ Money—add and subtract with regrouping</li> <li>○ Using nonstandard and standard units of measurement</li> <li>○</li> </ul>	<ul style="list-style-type: none"> <li>○ Read and interpret information from a line graph and use objects and drawings to form line graphs</li> <li>○ Explain method used to solve problems (solutions)</li> <li>○ Read, write and solve problems</li> <li>○ Illustrate fractions</li> <li>○ Create, interpret and analyze information from graphs</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify shapes—2 and 3 dimensional objects</li> <li>○ Congruence</li> <li>○ Symmetry</li> <li>○ Perimeter, area and volume</li> </ul>	<ul style="list-style-type: none"> <li>○ Collect data from graphs, use to add and subtract, compare and find patterns</li> <li>○ Make graphs</li> <li>○ Write questions</li> <li>○ Analyze data gathered from graphs, charts</li> <li>○ Reinforce addition and subtraction facts and concepts</li> <li>○ Use addition, subtraction, and multiplication in realistic situations</li> </ul>

## Third Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Add and subtract (single, double, triple digits and money)</li> <li>○ Regrouping</li> <li>○ Place value (reading/numbers)</li> <li>○ Greater than and less than</li> <li>○ Multiplication—2 and 3-digit numbers</li> <li>○ Classify numbers</li> <li>○ Money (grouping and counting change)</li> <li>○ Division</li> <li>○ Long division</li> <li>○ Beginning fractions</li> </ul>	<ul style="list-style-type: none"> <li>○ Rounding to tens and hundreds</li> <li>○ Time</li> <li>○ Rounding (tens, hundreds, thousands)</li> <li>○ Compare quantities</li> <li>○ Volume</li> <li>○ Mass</li> <li>○ Metric units</li> <li>○ Standard measurement</li> </ul>	<ul style="list-style-type: none"> <li>○ Word problems</li> <li>○ Addition and subtraction including money</li> <li>○ Identify unnecessary information</li> <li>○ Evaluate methods and solutions</li> <li>○ Use variables and number sentences to represent solutions to problems</li> <li>○ Solve multi-step problems</li> <li>○ Solve problems based on graphs and tables</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify, describe and compare geometric figures</li> <li>○ Perimeter, area, volume</li> <li>○ Symmetry</li> <li>○ Circumference</li> <li>○ Diameter</li> </ul>	<ul style="list-style-type: none"> <li>○ Write and solve self-created word problems</li> <li>○ Solve problems using graphs and charts</li> <li>○ Present topics with math data</li> </ul>

### Fourth Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Place value</li> <li>○ Powers of ten</li> <li>○ Expanded notation</li> <li>○ Whole numbers: add, subtract, multiply, and divide by one, two and three digits</li> <li>○ Decimals—read, write, identify (thousand place), round and compare decimals</li> <li>○ Fractions (relate to decimals)</li> <li>○ Percentages</li> <li>○ Add, subtract, like and unlike fractions and mixed numbers</li> <li>○ Identify model, represent equivalent fractions</li> </ul>	<ul style="list-style-type: none"> <li>○ Area and perimeter</li> <li>○ Standard and metric measures</li> <li>○ Measure drawings, models and angles</li> <li>○ Circle diameter, radius and circumference</li> <li>○ Scale-maps</li> <li>○ Metric system</li> <li>○ Square units</li> <li>○ Compare and order measures in standard and metric units</li> <li>○ Time</li> <li>○ Elapsed time</li> <li>○ Use approximate units of measure</li> </ul>	<ul style="list-style-type: none"> <li>○ Solve open number sentences</li> <li>○ Variables and equations</li> <li>○ Single step =, -, x, and division problems</li> <li>○ Multi-step word problems</li> <li>○ Multi-step measurement</li> <li>○ Probability</li> <li>○ Algebraic equations</li> </ul>	<ul style="list-style-type: none"> <li>○ Lines, points, rays, angles</li> <li>○ Categorize</li> <li>○ Describe, identify Properties and Geometric Relationships</li> <li>○ Describe parts of geometric figures</li> <li>○ Symmetry</li> <li>○ Area and perimeter</li> <li>○ Circle diameter, radius and circumference</li> </ul>	<ul style="list-style-type: none"> <li>○ Graphs, charts, tables</li> <li>○ Compare, interpret data</li> <li>○ Gather, organize, display data</li> <li>○ Graphing, tallies</li> <li>○ Draw conclusions</li> <li>○ Interpret relationships</li> <li>○ Draw conclusions from data</li> <li>○ Mean or average of series of numbers</li> </ul>

### Fifth Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Place value</li> <li>○ Powers of 10</li> <li>○ Fractions—improper, mixed, simplify</li> <li>○ Addition, subtraction, Division and multiplication of decimals and fractions</li> <li>○ Percentages</li> </ul>	<ul style="list-style-type: none"> <li>○ Calculate, compare and convert length, perimeter, area, weight/mass and volume within the customary and metric systems.</li> <li>○ Rounding</li> <li>○ Estimation, rounding</li> <li>○ Determine and communicate possible methods for estimating a given measure, selecting proper units in both customary and metric systems.</li> </ul>	<ul style="list-style-type: none"> <li>○ Single step and multi-step addition, subtraction, multiplication, division</li> <li>○ Simple measurement conversions</li> <li>○ Multi-step problems using fractions, decimals, measurement, and conversion</li> <li>○ Algebra concepts</li> <li>○ Probability</li> </ul>	<ul style="list-style-type: none"> <li>○ Geometry</li> <li>○ Angles</li> <li>○ Polygons</li> <li>○ Circle</li> <li>○ Solids</li> <li>○ Area</li> <li>○ Perimeter</li> <li>○ Circumference</li> <li>○ Diameter</li> <li>○ Compare geometric figures and determine their properties including parallel, perpendicular, similar, congruent and line symmetry.</li> <li>○ Draw or construct two- and three-dimensional geometric figures including prisms, pyramids, cylinders and cones.</li> <li>○ Formulate logical arguments about geometric figures and patterns and communicate reasoning.</li> </ul>	<ul style="list-style-type: none"> <li>○ Graphing-line and bar and circle</li> <li>○ Tallying</li> <li>○ Graphing</li> <li>○ Averages</li> <li>○ Mean, median, mode, bell curve</li> </ul>

### Sixth Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Whole numbers through trillions</li> <li>○ Read, write and say decimals</li> <li>○ Compare and order quantities</li> <li>○ Powers and exponents</li> <li>○ Fractions (add, subtract, divide, multiply)</li> <li>○ Equivalent fractions</li> <li>○ Unlike denominators</li> <li>○ Fraction, decimal and percent relationships</li> </ul>	<ul style="list-style-type: none"> <li>○ Whole and decimal numbers (addition, subtraction, multiplication and division)</li> <li>○ Integer number line</li> <li>○ Circumference</li> <li>○ Weight, capacity, length, temperature, and time</li> <li>○ Perimeter, area and volume</li> <li>○ Measure and draw angles</li> </ul>	<ul style="list-style-type: none"> <li>○ Order of operations</li> <li>○ Properties of mathematics</li> <li>○ Prediction</li> <li>○ Solve problems using data</li> <li>○ Create, describe, and solve problems involving open sentences</li> <li>○ Solve multi-step problems involving addition, subtraction, multiplication, division</li> <li>○ Numbers, currency, fractions, decimals and percents</li> </ul>	<ul style="list-style-type: none"> <li>○ Geometric patterns and figures</li> <li>○ 2 to 3-dimensional shapes</li> <li>○ Line segments</li> <li>○ Bisectors</li> <li>○ Angles</li> <li>○ Triangles</li> <li>○ Circles</li> <li>○ Circumference and diameter</li> <li>○ Perimeter, area, volume</li> <li>○ Polygons</li> <li>○ Tessellation</li> <li>○ Congruency</li> <li>○ Construct scale drawings</li> <li>○ Measure and draw angles to the nearest 5 degrees using a protractor</li> <li>○ Create drawings or models representing specific measures</li> </ul>	<ul style="list-style-type: none"> <li>○ Qualifiers</li> <li>○ Gather, organize, and display data</li> <li>○ Schedules</li> <li>○ Tables</li> <li>○ Range, mean, median, and mode</li> <li>○ Tallies</li> <li>○ Line plots</li> <li>○ Line, bar, and circle graphs</li> <li>○ Use rates and derived units in real-life situations</li> <li>○ Scattergrams, stem and leaf plot and box and whisker plot</li> <li>○ Communicate the results of a survey or experiment and use them to predict future results and make relevant decisions based on data gathered</li> <li>○ Ratios and probability</li> <li>○ Explain the concept of "Sample"</li> <li>○ Analyze, predict, discuss, and defend possible outcomes, probability, and odds.</li> </ul>



## Seventh Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Rational numbers</li> <li>○ Percent</li> <li>○ Fractions, decimals</li> <li>○ Equivalent fraction</li> <li>○ Ratios</li> <li>○ GCF, LCM</li> <li>○ Number expressions</li> <li>○ Inverse relationships (+, -, x, /)</li> <li>○ Expanded notation</li> <li>○ Exponential notation</li> <li>○ Rational/irrational numbers</li> <li>○ Consumer application (discount/irrational numbers)</li> </ul>	<ul style="list-style-type: none"> <li>○ Area, volume, weight, time</li> <li>○ Ordered pairs</li> <li>○ Proportional change</li> <li>○ Scale</li> <li>○ Measurement</li> <li>○ Rate</li> <li>○ Change</li> <li>○ Calculate, compare and convert length, perimeter, area, weight/mass and volume within the customary and metric systems.</li> <li>○ Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.</li> </ul>	<ul style="list-style-type: none"> <li>○ Graph data</li> <li>○ Properties of numbers</li> <li>○ Linear equations</li> <li>○ Variables</li> <li>○ Ordered pairs</li> <li>○ Coordinate plane</li> <li>○ Algebraic expressions</li> <li>○ Evaluate expressions</li> <li>○ Identify/analyze patterns</li> </ul>	<ul style="list-style-type: none"> <li>○ Angles</li> <li>○ Parallel and perpendicular lines</li> <li>○ Congruence</li> <li>○ Geometric figures</li> <li>○ Area</li> <li>○ Volume</li> <li>○ Formulate logical arguments about geometric figures and patterns</li> <li>○ Identify, describe, classify and compare two- and three- dimensional geometric figures and models according to their properties.</li> </ul>	<ul style="list-style-type: none"> <li>○ Frequency distributions</li> <li>○ Probability</li> <li>○ Mean, median, mode</li> <li>○ Collect/analyze data</li> <li>○ Hypothesis</li> <li>○ Draw conclusions</li> </ul>

## Eighth Grade Math Priorities

Goal 6 Numbers and Operations	Goal 7 Estimate and Measure	Goal 8 Problem Solving	Goal 9 Size and Shape	Goal 10 Pull it Together
<ul style="list-style-type: none"> <li>○ Represent and use numbers in equivalent forms, percentages, repeating decimals</li> <li>○ Add, subtract, multiply, divide rational numbers, inverse relationships of math functions in equations</li> <li>○ LCM and GCF</li> <li>○ Compare real numbers using ratios and proportions</li> <li>○ Rational and irrational numbers, square roots, relationships among subsets of real numbers</li> </ul>	<ul style="list-style-type: none"> <li>○ Measure area, length, volume, and surface area problems for geometric shapes</li> <li>○ Use appropriate units</li> <li>○ Vertices as ordered pairs to determine area and perimeter of polygon</li> <li>○ Change in linear dimensions of an object changes perimeter</li> <li>○ Compare Fahrenheit and Celsius</li> <li>○ Draw models</li> <li>○ Use derived units and indirect methods for obtaining measures</li> </ul>	<ul style="list-style-type: none"> <li>○ Determine whether equations or data given in tables define functions</li> <li>○ Basic properties associative, communicative, orders of operations of real numbers</li> <li>○ Solve linear equations using addition, multiplication, and inverse operations</li> <li>○ Domain of independent variables, range of dependent variables</li> <li>○ Solve problems written as expressed</li> <li>○ Describe how change in one variable affects others</li> <li>○ Define, use, interpret linear relationships and represent them with graphs and equations</li> <li>○ Translate algebraic expressions into phrases and sentences, graph inequalities</li> <li>○ Analyze real world situations and patterns to see if linear or other simple relationships exist</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify, describe, classify and compare two- and three- dimensional geometric figures and models according to their properties.</li> <li>○ Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space</li> <li>○ Construct, develop and communicate logical arguments (informal proofs) about geometric figures and patterns.</li> <li>○ Develop and solve problems using geometric relationships and models, with and without the use of technology.</li> </ul>	<ul style="list-style-type: none"> <li>○ Analyze, predict, discuss possible outcomes</li> <li>○ Estimate probability from a series of trials</li> <li>○ Measures of central tendency</li> <li>○ Displaying data</li> <li>○ Visualize and represent three dimensional objects in two dimensions</li> <li>○ Consumer applications problems, inductive and deductive reasoning, justify solutions for problems</li> </ul>

## Online MATH RESOURCES

This page lists on-line Math resources. Go to ISBE.net and <http://www.cmsi.cps.k12.il.us/> to find guides and links to math priorities and resources.

<p><b>Activity Search</b> <a href="http://www.pbs.org/parents/fungames/">http://www.pbs.org/parents/fungames/</a></p> <p><b>Helping your child learn mathematics with activities for children in preschool through age 5</b> <a href="http://www.ed.gov/parents/academic/help/math/index.html">http://www.ed.gov/parents/academic/help/math/index.html</a></p> <p><b>King's list of online math activities</b> <a href="http://www.k111.k12.il.us/king/math.htm">http://www.k111.k12.il.us/king/math.htm</a></p> <p><b>Cadbury Learning Zone</b> <a href="http://www.cadburylearningzone.co.uk/">http://www.cadburylearningzone.co.uk/</a></p> <p><b>At home with math: ten math activities for parents and kids</b> <a href="http://athomewithmath.terc.edu/">http://athomewithmath.terc.edu/</a></p> <p><b>Numbertime</b> <a href="http://www.bbc.co.uk/schools/numbertime/index.shtml">http://www.bbc.co.uk/schools/numbertime/index.shtml</a></p> <p><b>Helping your child learn math</b> <a href="http://www.ed.gov/pubs/parents/Math/index.html">http://www.ed.gov/pubs/parents/Math/index.html</a></p> <p><b>PrimaryMath: paperless arithmetic learning for school and home</b> <a href="http://www.primarymath.org/">http://www.primarymath.org/</a></p> <p><b>Early childhood: where learning begins. Mathematics: activities for parents and their 2 to 5-year-old children</b> <a href="http://www.ed.gov/pubs/EarlyMath/">http://www.ed.gov/pubs/EarlyMath/</a></p>	<p><b>Geometry and measurement. Grades 6-8</b> <a href="http://www2.edc.org/mathpartners/pdfs/6-8%20Geometry%20and%20Measurement.pdf">http://www2.edc.org/mathpartners/pdfs/6-8 Geometry and Measurement.pdf</a></p> <p><b>Geometry and measurement. Grades K-2</b> <a href="http://www2.edc.org/mathpartners/pdfs/K-2%20Geometry%20and%20Measurement.pdf">http://www2.edc.org/mathpartners/pdfs/K-2 Geometry and Measurement.pdf</a></p> <p><b>Activity Search</b></p> <p><b>Geometry and measurement. Grades 3-5</b> <a href="http://www2.edc.org/mathpartners/pdfs/3-5%20Geometry%20and%20Measurement.pdf">http://www2.edc.org/mathpartners/pdfs/3-5 Geometry and Measurement.pdf</a></p> <p><b>When should we leave?</b> <a href="http://athomewithmath.terc.edu/english_PDF/math_ENG_sect6.pdf">http://athomewithmath.terc.edu/english_PDF/math_ENG_sect6.pdf</a></p> <p><b>Taking turns</b> <a href="http://athomewithmath.terc.edu/english_PDF/math_ENG_sect4.pdf">http://athomewithmath.terc.edu/english_PDF/math_ENG_sect4.pdf</a></p> <p><b>Problems with a point</b> <a href="http://www2.edc.org/mathproblems/default.asp">http://www2.edc.org/mathproblems/default.asp</a></p> <p><b>Which holds the most?</b> <a href="http://athomewithmath.terc.edu/english_PDF/math_ENG_sect9.pdf">http://athomewithmath.terc.edu/english_PDF/math_ENG_sect9.pdf</a></p> <p><b>Getsmarter.org</b> <a href="http://www.getsmarter.org/index.cfm">http://www.getsmarter.org/index.cfm</a></p>
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