# Grade 7 Math ACC (Master Map)

**School:** Binghamton Middle Schools  
**Teacher:** Master Map  
**Course #:** 111  
**Email:**  
**Grade Level:** 7

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Content</th>
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</thead>
<tbody>
<tr>
<td>September 2006</td>
<td>Problem Solving Strategies</td>
</tr>
<tr>
<td></td>
<td>Number Theory</td>
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<tr>
<td></td>
<td>Geometry - Polyhedrons</td>
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<table>
<thead>
<tr>
<th>Skills</th>
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<tbody>
<tr>
<td>Go over the following problem solving strategies:</td>
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</tbody>
</table>

- Make a table
- Guess-and-Check
- Venn Diagrams
- Organized Lists
- Logical reasoning
- Solve a simpler problem
- Observe patterns and formulate generalizations
- Work backwards

Use physical objects, drawings, charts, tables, graphs, symbols, or equations as representations.

Identify the relationships between relative error and magnitude when dealing with large numbers.

Identify the various subsets of real numbers and recognize the difference between rational and irrational.

Classify irrational numbers as nonrepeating/nonterminal decimals.

Place rational and irrational on a number line and justify their placement.

Recognize and state the square root of a perfect square.

Use calculator to find the square root of a non-perfect square and to identify the two consecutive whole numbers between which the square root falls.

**Assessment**

Daily warm up activities at the beginning of the period to discuss concepts of the prior class.

Daily observations.

Quizzes and Tests.

Exit cards.

Projects.
<table>
<thead>
<tr>
<th>Date</th>
<th>October 2006</th>
<th>Geometry:</th>
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<tbody>
<tr>
<td>- angles</td>
<td></td>
<td>- angles</td>
</tr>
<tr>
<td>- circle</td>
<td></td>
<td>- circle</td>
</tr>
<tr>
<td>- surface area</td>
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<td>- surface area</td>
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<tr>
<td>- volume</td>
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<td>- volume</td>
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<tr>
<td>Daily warm up activities at the beginning of the period to discuss concepts of the prior class</td>
<td>Daily observations</td>
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<tr>
<td>Daily observations</td>
<td>Quizzes and Tests</td>
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<tr>
<td>Exit cards</td>
<td>Projects</td>
<td></td>
</tr>
</tbody>
</table>

- Define and identify vertices, faces, and edges of three-dimensional shapes
- Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, cones and pyramids)
- Find a missing angle when given angles of a quadrilateral
- Build a pattern to develop a rule for determining the sum of the interior angles of polygons
- Identify pairs of vertical angles as congruent
- Identify pairs of supplementary and complementary angles
- Calculate the missing angle in a supplementary or complementary pair
- Determine angle pair relationship when given two parallel lines cut by a transversal
- Calculate the missing angle measurements when given two parallel lines cut by a transversal
- Calculate the missing angle measurements when given two intersecting lines and an angle
- Determine the area and circumference of a circle
- Solve simple proportions in context
- Understand the relationship between the diameter and radius of a circle
Calculate the radius or diameter, given the circumference or area of a circle

Use a variety of strategies to find the area of regular and irregular polygons

Identify radius, diameter, chords and central angles of a circle

Determine the surface area of prisms and cylinders, using a calculator and a variety of methods

Estimate surface area

Calculate the volume of prisms and cylinders, using a given formula and a calculator

November 2006

Integers

Add, subtract, multiply and divide integers

Add and subtract two integers (with and without the use of a number line)

Simplify expressions using order of operations Note: Expressions may include absolute value and/or integral exponents greater than 0.

Develop a conceptual understanding of negative and zero exponents with a base of ten and relate to fractions and decimals (e.g., \(10^{-2} = .01 = 1/100\))

Evaluate expressions with integral exponents

Write numbers in scientific notation

Translate numbers from scientific notation into standard form

Daily warm up activities at the beginning of the period to discuss concepts of the prior class

Daily observations

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Integers

Exponents

Scientific Notation

Statistics

Add, subtract, multiply and divide integers

Add and subtract two integers (with and without the use of a number line)

Simplify expressions using order of operations Note: Expressions may include absolute value and/or integral exponents greater than 0.

Develop a conceptual understanding of negative and zero exponents with a base of ten and relate to fractions and decimals (e.g., \(10^{-2} = .01 = 1/100\))

Evaluate expressions with integral exponents

Write numbers in scientific notation

Translate numbers from scientific notation into standard form
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<tr>
<th>December 2006</th>
<th>Statistics</th>
<th>Probability</th>
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<tbody>
<tr>
<td></td>
<td>Read and interpret data represented graphically (pictograph, bar graph, histogram, line graph, double line/bar graphs, or circle graph)</td>
<td>Daily warm up activities at the beginning of the period to discuss concepts of the prior class</td>
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<tr>
<td></td>
<td>Identify and explain misleading statistics and graphs</td>
<td>Daily observations</td>
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<tr>
<td></td>
<td>Identify and collect data using a variety of methods</td>
<td>Quizzes and Tests</td>
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<tr>
<td></td>
<td>Record data in a frequency table</td>
<td>Exit cards</td>
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<tr>
<td></td>
<td>Convert raw data into double bar graphs and double line graphs</td>
<td>Projects</td>
</tr>
<tr>
<td></td>
<td>Determine and justify the most appropriate graph to display a given set of data (pictograph, bar graph, line graph, histogram, or circle graph)</td>
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<td>Draw central angles in a given circle using a protractor (circle graphs)</td>
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<tr>
<td></td>
<td>Display data in a circle graph</td>
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<td></td>
<td>Interpret data to provide the basis for predictions and to establish experimental probabilities</td>
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<td>Determine the validity of sampling methods to predict outcomes</td>
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<td></td>
<td>Predict the outcome of experiment</td>
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</tbody>
</table>
| January 2007 | Algebra  
- expressions  
- equations  
- exponents |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Design and conduct an experiment to test predictions.</td>
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<td>Compare actual results to predicted results.</td>
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<td>List possible outcomes for compound events.</td>
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<td></td>
<td>Determine the number of possible outcomes for a compound event by using the fundamental counting principle and use this to determine the probabilities of events when the outcomes have equal probability.</td>
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<td></td>
<td>Determine the probability of dependent events.</td>
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<td>Translate two-step verbal expressions into algebraic expressions.</td>
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<td></td>
<td>Write verbal expressions that match given mathematical expressions.</td>
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<td></td>
<td>Translate verbal sentences into algebraic inequalities.</td>
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<tr>
<td></td>
<td>Use substitution to evaluate algebraic expressions (may include exponents of one, two and three).</td>
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<tr>
<td></td>
<td>Evaluate formulas for given input values (surface area, rate, and density problems).</td>
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<td>Solve equations/ proportions to convert to equivalent measurements within metric and customary measurement systems. Note: Also allow Fahrenheit to Celsius and vice versa.</td>
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<tr>
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<td>Develop the laws of exponents for multiplication and division.</td>
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<td>Develop and apply the laws of exponents for multiplication and division.</td>
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<td>Exit cards.</td>
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<td>Projects.</td>
</tr>
<tr>
<td>February 2007</td>
<td>Solve simple proportions within context</td>
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<tr>
<td>March 2007</td>
<td>Algebra - patterns - factoring</td>
</tr>
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</table>
graphically
Describe a situation involving
relationships that matches a given
graph
Create algebraic patterns using
charts/tables, graphs, equations, and
expressions
Write an equation to represent a
function from a table of values
Factor algebraic expressions using the
GCF (if time)
Factor a trinomial in the form
ax²+bx+c; a=1 and c having no more
than 3 sets of factors (if time)

April 2007
Right Triangles
Pythagorean Theorem
Transformational Geometry
Identify the right angle, hypotenuse,
and legs of a right triangle
Explore the relationship between the
lengths of the three sides of a right
triangle to develop the Pythagorean
Theorem
Use the Pythagorean Theorem to
determine the unknown length of a
side of a right triangle
Determine whether a given triangle is
a right triangle by applying the
Pythagorean Theorem and using a
calculator
Describe and identify transformations
in the plane, using proper function
notation (rotations, reflections,
translations, and dilations.)
Draw the image of a figure under
rotations of 90 and 180 degrees
Draw the image of a figure under a
reflection over a given line
Draw the image of a figure under a

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Draw the image of a figure under a dilation

Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation

May 2007

Proportions

Percents

Calculate unit price using proportions

Convert money between different currencies with the use of an exchange rate table and a calculator

Calculate distance using a map scale

Compare unit prices

Read, write, and identify percents less than 1% and greater than 100%

Apply percents to: Tax, percent increase/decrease, simple interest, sale price, commission, interest rates, and gratuities

Estimate a percent of a quantity, given an application

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June 2007

Coordinate Geometry

- slope
- graphing linear equations

Determine the slope of a line from a graph and explain the meaning of slope as a constant rate of change

Determine the y-intercept of a line from a graph and be able to explain the y-intercept

Find a set of ordered pairs to satisfy a given linear numerical pattern (expressed algebraically); then plot the ordered pairs and draw the line

Graph a line using a table of values

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<table>
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<tr>
<th>Create a graph given a description or an expression for a situation involving a linear or nonlinear relationship</th>
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<tbody>
<tr>
<td>Determine the equation of a line given the slope and the y-intercept</td>
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<tr>
<td>Graph a line from an equation in slope-intercept form (y=mx+b)</td>
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<tr>
<td>Solve systems of equations graphically (only linear, integral solutions, y=mx+b format, no vertical/horizontal lines)</td>
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</table>