

<b>Math Enrichment Class Series</b>				
<b>Class</b>	<b>Level</b>	<b>Student Age Group</b>	<b>Class Purpose</b>	<b>Class Coverage</b>
EM1	Entry	Elementary school grade 1-2	Start to prepare younger kids with basic problem-solving steps, creative thinking and analytical skill of math word problems	Introduce basic concepts with focus on word problems: <ul style="list-style-type: none"> <li>- additional and subtraction among whole numbers</li> <li>- money, length and weight</li> <li>- reading clock</li> <li>- capacity, Graph, Time, and Perimeter</li> <li>- simple multiplication and division</li> </ul>
EM 2	Elementary	Elementary school grade 2-3, or who has completed EM1	Guide younger kids to study breadth of basic math knowledge and learn the skills to apply the knowledge to problem-solving	Introduce the basic concept of number operation, fraction and basic concept in Geometry such as <ul style="list-style-type: none"> <li>- counting, rounding, factor and multiple of whole numbers</li> <li>- addition, subtraction, multiplication, and division among whole numbers</li> <li>- addition and subtraction of fractions</li> <li>- tables, graphs and angles</li> <li>- parallel and perpendicular lines</li> <li>- area and perimeter of rectangles and squares</li> </ul>
EM 3	Elementary	Elementary school grade 3-4, or who has completed EM2	Help students focus on problem solving using Model Approach which has been proven to be the most versatile and effective method of solving many difficult and challenging problems	Review and introduce the topics such as: <ul style="list-style-type: none"> <li>- whole numbers, fractions, decimal and ratios</li> <li>- percentage and average</li> <li>- area of triangle, quadrilateral and circle</li> <li>- volume of rectangles, cone and cylinder</li> <li>- angles, polygons</li> </ul>
EM 4 – Pre-Algebra	Elementary	Elementary school grade 4-5, or who has completed EM3	Continue to help students focus on problem solving using Model Approach, and get students to ready for algebraic thinkings	Review and enhance the topics such as: <ul style="list-style-type: none"> <li>- whole numbers, fractions, decimal and ratios</li> <li>- percentage and average</li> <li>- area of triangle, quadrilateral and circle</li> <li>- volume of rectangles, cone and cylinder</li> <li>- angles, polygons</li> </ul>

EM - Algebra	Developing	Middle school grade 5-7	Introduce basic concepts of Algebra to help students review, improve and build stronger math foundations for junior high school	Introduce the Algebra concepts involving variables <ul style="list-style-type: none"> <li>- indices or exponents with numbers and variables</li> <li>- expanding and factorization</li> <li>- quadratic equations, system of linear equations</li> <li>- word problem involving rate, ration and percentage</li> <li>- coordinate plane, quadratic graphs</li> <li>- inequality with variables</li> </ul>
EM - Geometry	Developing	Middle school grade 6-8	Focus on Geometry and Statistics to help students review, improve and build stronger math foundations for junior high school	Introduce the basic concepts for Geometry and Statistics <ul style="list-style-type: none"> <li>- congruent and similar triangles</li> <li>- measurement for sector, cone, arc and pyramid</li> <li>- Pythagorean theorem and trigonometry</li> <li>- motion Geometry</li> <li>- statistics: graphic presentation of data and measurement of the distribution</li> </ul>
EM – Algebra 2		Middle school grade 6-8	Build on concepts and problem-solving skills learned from Algebra and Geometry	Introduce concepts from Geometry and Statistics <ul style="list-style-type: none"> <li>- functions</li> <li>- complex numbers</li> <li>- sequences and series</li> <li>- probability</li> <li>- statistics</li> <li>- trigonometry and graphs</li> </ul>
EM - Pre-Calculus		High school students	Introduce fundamental knowledge and related problem-solving skill. Help Ram up students for further study in AP Calculus	Throughout the course, students will learn: <ul style="list-style-type: none"> <li>- Operations of Algebraic expressions, and functions</li> <li>- Evaluate, graph, transform functions / inverse functions</li> <li>- Polynomials and rational/complex zeros</li> <li>- Solve equations, system of equations, inequalities</li> <li>- Analyze, graph trigonometric functions and their inverse ones</li> </ul>
EM - SAT Math		Students from grade 8 to 11, who are preparing for a successful SAT Math test	Review the fundamental math concepts according to the new SAT test standards, and practice basic problem-solving using SAT exam references	Review the SAT material: <ul style="list-style-type: none"> <li>- Number and Operations</li> <li>- Algebra and Functions</li> <li>- Geometry and Measurement</li> <li>- Data Analysis, Statistics, and Probability</li> <li>- SAT mock exams</li> </ul>

<b>Math Olympic Class Series</b>				
<b>Class</b>	<b>Level</b>	<b>Student Age Group</b>	<b>Class Purpose</b>	<b>Class Coverage</b>
MO 1	entry	Above 3rd grade, who has just started to learn MO. (*** Prerequisites: MUST be already proficient in basic arithmetic skills and PEMDAS ***)	Introduce basic math concepts that are required in math competitions such as MathIsCool	Explain types of numbers, prime factorization, LCM, GCF, exponent, radical, and factorial, fraction, percent, decimal, ratio, proportion, as well as mean, median, and mode; Basic Algebra expressions and operations, using Algebra to solve simple word problems; Geometry shapes, perimeter, area, circumference, surface area, and volume; Basic counting methods and basic probability.
MO 2	elementary	Around 4th grade, who has learned MO for 1 year	Use practical problem-solving examples to systematically walk through math concepts and basic problem-solving strategies that are being used in the competition.	Review basics with in-depth explanations and examples, practice problems using basic concepts such as, - prime & composite - distributive property, etc. - "Chickens & Rabbits" pattern of word problem - "Money" word problem - basic logic problem - ratio and proportion - "incircle knowledge" of triangle, polygon, and circle - counting and probability related word problem
MO 3	developing	Around 5th grade, who has learned MO for 1-2 years	Enrich basic math concepts with challenging problem-solving practice. It requires students to have creative thinking and be comfortable in a competitive setting.	Introduce topics such as: - unit digits, number base, and special numbers - clock hands and angle - polygon and geometric calculation - linear equation and word problem - etc.
MO 4	developing	Middle school students who are preparing for MathCounts and AMC 8 competitions	Help students who take MathCounts and AMC 8 challenges.	With assumption of students at a certain level of well-developed problem-solving skill in middle school math competition area, this class uses MathCounts and AMC 8 target levels of training material. MathCounts event is only for middle school students to participate nationwide ( <a href="http://mathcounts.org/programs/competition-series">http://mathcounts.org/programs/competition-series</a> ) *** Note: students need to register with their regular schools to participate the MathCounts event ***

HS MO 1		Students who are ready to participate high school level of math competitions, such as AMC 10/12	Help students lay out a solid and competitive foundation at high school level of math competitions, in order to compete for AMC 10 and above	Reference books: <Art of Problem Solving Volume 1: the Basics> <Art of Problem Solving Volume 2: and Beyond>
HS MO 2		Students Who have learned HS MO for about 1 year	Improve students' problem-solving proficiency at significantly competitive level (AMC 10/12 and AIME)	Reference books: <Art of Problem Solving Volume 2: and Beyond> <Challenging Problems in Geometry> <Art of Problem Solving: Intermediate Algebra> etc.
HS MO 3		Who has learned HS MO for about 2 year	Enhance students' proficiency in competitive level (AMC 10/12, AIME) of problem-solving.	Class topics cover major areas as below: Number Theory Algebra - polynomial, functions, equations, and inequality Geometry - mass point, analytic, inequality, and solid Combinatorics Probability

# Computer Programming Class Series

Class	Level	Student Age Group	Class Purpose	Class Coverage
Basic	entry	4th grade and above	Introduce basic programming concepts that will pave the road to practical programming	Learn programming basics from ground up. Topics include variables, loops, and branching logic. The class will be hands-on throughout the course, and students will be creating real, working programs.
Intermediate	elementary	Students who have taken "Basic" level, or its equivalent	Expand students' knowledge, and more importantly, their interests in learning programming.	Use Java programming language in hands-on projects to learn Java basics, fundamental data structures like arrays, object-oriented programming design, algorithms, and etc.
Advanced	Developing	Students who have taken "Intermediate" level, or its equivalent	Continue to develop student's interest in learning and mastering basic concepts and knowledge at intermediate level or above.	Use Java language in projects to review data structures like lists and arrays, object-oriented programming design practice, algorithms such as binary search, different approaches of sorting, big-O analysis, and etc.

<b>Gifted Program Class Series</b>				
<b>Class</b>	<b>Level</b>	<b>Student Age Group</b>	<b>Class Purpose</b>	<b>Class Coverage</b>
1 <sup>st</sup> Grade		K, 1 <sup>st</sup> grade students	Get kids ready for the gifted program qualification test (1 <sup>st</sup> grade level), while having fun of learning advanced knowledge	<p>The class teaching plan contains following categories,</p> <ul style="list-style-type: none"> <li>• Math and Science, i.e. money, time, atoms and molecule lab;</li> <li>• English and Vocabulary</li> <li>• CogAT, ITBS, and Logic</li> </ul>
2 <sup>nd</sup> Grade		1 <sup>st</sup> , 2 <sup>nd</sup> grade students	Explore funs through learning math, science, and other "common sense" areas that may help students prepare for the gifted qualification test (2 <sup>nd</sup> grade level)	<p>Three main parts: critical thinking, creative construction, and common sense.</p> <p>Cover diverse concepts, such as arithmetic, geometric shape, abstract and critical thinking, basic physics and chemistry science, drawing, English reading and writing, and etc.</p>