New Hampshire
Department of Education

Learn Everywhere Program Initial Application

1.0   Applicant Information [Ed 1403.01(a)(2)].

Organization Name: Russian School of Mathematics

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2.0   Purpose, mission statement, or both [Ed 1403.01(a)(1)].

Russian School of Mathematics (RSM) uses the rigorous study of mathematics to develop our students' math fluency, intellect, and character. Our students are guided to think about mathematics logically and conceptually, building deep connections between concepts, all in an environment of their peers that keeps them consistently challenged. The program provides a clear and focused purpose that supports student learning.

3.0   A description of the demonstrated instructor qualifications required for the program(s) and a statement assuring that the instructor(s) satisfies those qualifications [Ed 1403.01(a)(3)].

At RSM, all prospective teachers go through a standardized interview process, which includes a telephone interview, an in-person interview, and a level-appropriate math assessment. All teachers must score at least 75% on the math assessment to qualify to teach at RSM. Prospective teachers must also complete a teaching demonstration, where qualities such as classroom management, effective communication, and deep knowledge of subject matter are evaluated. All aspects of the hiring process are managed by the branch Principal, including the interviews and evaluations. The principal is also an experienced teacher who has gone through extensive training as a teacher, as an administrator, and as a hiring manager.

Once hired, all teachers are placed into our employee training program. A professional development plan is created for every teacher and it is mandatory to ensure that they teach according to RSM's methodology. RSM implements a mandatory New Teacher Course, Mentoring Program, and the Teacher's Training Program to ensure that our teachers provide the highest-quality education possible.

The program assigns each newly hired teacher with an experienced mentor who works with

the new hire on a weekly basis (at minimum), and provides study materials, in-class observations, and mentorship. Mentoring is mandatory for every new teacher during the first year of employment. In the second and third year of employment all teachers are enrolled into year-long training classes, led by a head teacher. Once a teacher has demonstrated mastery of our methodology, as well as our curriculum, they retain contact with their mentors, and are often observed in their classrooms by their mentor or by management.

Additionally, all classes are tested twice a year to ensure consistent quality throughout all RSMs. All RSM Nashua teachers have at least a bachelor's degree, with many having more advanced degrees. Please note that RSM has been fully accredited by Western Association of Schools and Colleges (WASC) in California. RSM has also been fully accredited by Cognia in Louisville, KY. RSM has been accredited for all the classes for which we are currently seeking approval, and is in the process of being accredited in several other regions as well.

4.0   A criminal history records check policy that includes a statement affirming that the sponsoring entity shall not allow instruction or student contact by a person who has been charged pending disposition for, or convicted of*,* any violation or attempted violation of any of the offenses as outlined in RSA 189:13-a, V pursuant to a criminal history records check conducted by the department of safety as outlined in Saf-C 5703.06 through Saf-C 5703.11 [1403.01(a)(4)].

RSM uses HireRight, a leading provider of on-demand background screening to perform a nationwide search and conduct a comprehensive background check for all staff. HireRight confirms that they are following the requirements and procedures outlined in RSA 189:13-a and in Saf-C5703.06-Saf-C5703.11.RSM would not hire a person who has a pending or convicted disposition of child abuse.

All offers of employment are contingent upon satisfactory results of these or additional employment screening processes. RSM reserves the right to periodically update criminal and sex offender records for individual employees, employees in specific job categories or the school department staff as a whole. Background check results will be evaluated based on the type of position the applicant/employee is seeking. Some background check results will be a disqualification from certain positions. This policy will be disclosed to parents upon enrollment.

5.0   For the proposed instructional program(s), identify the education, program, or opportunity from Ed 306.27*(v)* for which students completing the learn everywhere program shall receive high school credit(s) [Ed 1403.01(b)(1)(a)].

The courses RSM is seeking approval for are Algebra I Accelerated, Algebra I Advanced, Algebra I Honors, Algebra II Accelerated, Algebra II Advanced, Algebra II Honors, PreCalculus Accelerated, PreCalculus Advanced, PreCalculus Honors, Introduction to Calculus Advanced, Introduction to Calculus Honors, Geometry II, Geometry III, AP Calculus BC, AP Statistics, Analytic Geometry & Intro to Trigonometry, Trigonometry Advanced, and Trigonometry Honors.

6.0   An outline of each program for which approval is sought, which includes goals, competencies, a detailed description of the course of instruction, and a description of expected student outcomes [Ed 1403.01(b)(1)(b)].

RSM offers 3 academic levels for each course (accelerated, advanced, and honors), just as many day schools do. All students who register for RSM must meet with our principal to evaluate which level is deemed most appropriate for that particular student.

RSM stated objectives are the following:

1. Our students build connections between concepts by working with them in multiple contexts, and by learning new material based on what they already know. This empowers them with a flexibility and agility of thought as they are able to view and solve problems from multiple angles and in multiple ways. This goes beyond the classroom and helps students face real-life situations using the logic and problem-solving skills that they learn at RSM.

2. Students don't grow when in their comfort zone, so we ensure they are consistently (and appropriately) challenged. Our students become accustomed to and enjoy the idea that there are problems for which the solution requires focus, thought, and persistence. We do this by regularly engaging our students with difficult and unfamiliar types of problems, where they must push the boundaries of their knowledge and attempt to craft a solution even when unsure of the steps to get there.

3. The classroom environment is an essential aspect of our program. Guided by their teacher through the common effort of learning and discovery, students learn how to debate, explain, and verbalize their thinking to a group of like-minded peers. They also get used to an environment of healthy competition. This not only deepens their understanding but prepares our students for university and career.

4. Our students post remarkable scores on math competitions, see soaring grades and confidence overall, and are accepted into the universities of their choice. While math competitions may not be a primary objective of RSM, our students' extraordinary success has shown to be an excellent side effect, which further validates our method of teaching.

Below are the lists of competencies for each courses for which approval is sought:

Algebra I Accelerated Competencies:

Equations and Word Problems: Students will demonstrate an understanding of equations and word problems by applying analytical methods to simplify, solve and analyze problems involving equations, with an emphasis on ratios, proportions and percents.

Coordinate Geometry: Students will demonstrate an understanding of linear equations by applying analytical and graphical methods to solve and analyze problems involving coordinate planes, including slopes, intercepts, three different forms of linear equations and the conversion of one form to another. We also use graphical interpretations of linear functions, and analyze them in comparison to quadratic and exponential functions, exploring the rate of growth and behavior of various functions.

Exponents: Students will demonstrate an understanding of exponents by applying analytical methods to derive properties, and to simplify, solve and analyze problems involving exponents, including a look at exponential equations, and an introduction to square roots.

Polynomials: Students will demonstrate an understanding of polynomials by applying analytical

methods to derive, simplify, solve and analyze problems involving polynomials, with an emphasis on various factoring methods and operations with polynomials. This includes an introduction of quadratic equations and a proof of the quadratic formula.

Special Products: Students will demonstrate an understanding of special products by applying analytical methods to derive, simplify, solve and analyze problems involving special products, with an emphasis on difference of squares, and perfect square trinomials.

Systems of Linear Equations: Students will demonstrate an understanding of systems of linear equations by applying analytical and graphical methods to simplify, solve, and analyze problems involving systems of linear equations, with an emphasis on word problems.

Algebra I Advanced Competencies:

Coordinate Geometry: Students will demonstrate an understanding of linear equations by applying analytical and graphical methods to solve and analyze problems involving coordinate planes, including slopes, intercepts, three different forms of linear equations and the conversion of one form to another. We also use graphical interpretations of linear functions, and analyze them in comparison to quadratic and exponential functions, exploring the rate of growth and behavior of various functions.

Exponents: Students will demonstrate an understanding of exponents by applying analytical methods to derive properties and to simplify, solve and analyze problems involving exponents, including a look at exponential equations.

Square Roots: Students will demonstrate an understanding of square roots by applying analytical methods to derive, simplify, solve and analyze problems involving square roots.

Polynomials: Students will demonstrate an understanding of polynomials by applying analytical methods to derive, simplify, solve and analyze problems involving polynomials, with an emphasis on various factoring methods and operations with polynomials. This includes an introduction of quadratic equations and a proof of the quadratic formula.

Special Products: Students will demonstrate an understanding of special products by applying analytical methods to derive, simplify, solve and analyze problems involving special products, with an emphasis on difference of squares, and perfect square trinomials.

Systems of Linear Equations: Students will demonstrate an understanding of systems of linear equations by applying analytical and graphical methods to simplify, solve, and analyze problems involving systems, with an emphasis on word problems.

Algebra I Honors Competencies:

Linear Functions: Students will demonstrate an understanding of linear functions by applying analytical and graphical methods to solve and analyze problems involving linear functions, with an emphasis on function definitions, the three forms of linear equations, and the relationships between these forms, as well as absolute value graphs. We also use graphical interpretations of linear functions and analyze them in comparison to quadratic and exponential functions, exploring the rate of growth and behavior of various functions.

Exponents: Students will demonstrate an understanding of exponents by applying analytical methods to derive, simplify, solve and analyze problems involving exponents, including a study of exponential equations and a basic introduction to logarithms.

Square Roots: Students will demonstrate an understanding of square roots by applying analytical methods to derive, simplify, solve and analyze problems involving square roots.

Polynomials: Students will demonstrate an understanding of polynomials by applying analytical methods to derive, simplify, solve and analyze problems involving polynomials, with an emphasis on various factoring methods and operations with polynomials.

Special Products: Students will demonstrate an understanding of special products by applying analytical methods to derive, simplify, solve and analyze problems involving special products, with an emphasis on difference of squares, and perfect square trinomials.

Quadratic Equations: Students will demonstrate an understanding of quadratic equations by applying analytical methods to derive, simplify, solve and analyze problems involving quadratic equations, using several different methods. We emphasize the derivation of the quadratic formula.

Systems of Linear Equations: Students will demonstrate an understanding of systems of linear equations by applying analytical and graphical methods to simplify, solve, and analyze problems involving systems, with an emphasis on word problems.

Sets: Students will demonstrate an understanding of sets by applying analytical methods to derive, simplify, solve and analyze problems involving sets, with an emphasis on intersections, unions, cardinality, and complements.

Algebra II Accelerated Competencies:

Exponents, Equations and Word Problems: Students will demonstrate an understanding of equations, exponents and word problems by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving equations, exponents and word problems, with an emphasis on linear graphs, exponent rules, monomials and motion problems.

Polynomials: Students will demonstrate an understanding of polynomials by applying analytical methods to derive, simplify, solve and analyze problems involving polynomials, with an emphasis on various factoring methods and operations with polynomials.

Special Products: Students will demonstrate an understanding of special products by applying analytical methods to derive, simplify, solve and analyze problems involving special products, with an emphasis on difference of squares, and perfect square trinomials.

Inequalities: Students will demonstrate an understanding of inequalities by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving algebraic inequalities, including higher degree inequalities, systems of inequalities, multi-variable inequalities and absolute value inequalities.

Algebraic Fractions: Students will demonstrate an understanding of algebraic fractions by applying analytical methods to derive, simplify, solve and analyze problems involving algebraic fractions, with an emphasis on simplification and reduction of algebraic functions, as well as the restrictive domains of algebraic function.

Square Roots: Students will demonstrate an understanding of square roots by applying analytical methods to derive, simplify, solve and analyze problems involving square roots.

Quadratic Equations: Students will demonstrate an understanding of quadratic equations by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving quadratic equations, including a look at solving rational equations. We also go through Vieta's formulas, and we derive the quadratic formula using universal methods.

Functions: Students will demonstrate an understanding of functions by applying analytical and graphing methods to derive, simplify, solve and analyze problems involving functions, with an emphasis on domain, range, zeros, including a look at parabolas and extrema of a function. We also focus on various types of functions, including quadratic and exponential functions.

Algebra II Advanced Competencies:

Inequalities: Students will demonstrate an understanding of inequalities by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving algebraic inequalities, including higher degree inequalities, systems of inequalities, multi-variable inequalities and absolute value inequalities.

Special Products: Students will demonstrate an understanding of special products by applying analytical methods to derive, simplify, solve and analyze problems involving special products, with an emphasis on the sum and difference of cubes.

Square Roots: Students will demonstrate an understanding of square roots by applying analytical methods to derive, simplify, solve and analyze problems involving square roots.

Quadratic Equations: Students will demonstrate an understanding of quadratic equations by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving quadratic equations, with an emphasis on various methods of solving quadratic equations, and word problems involving quadratic equations. We also go through Vieta's formulas, and we derive the quadratic formula using universal methods.

Algebraic Fractions: Students will demonstrate an understanding of algebraic fractions by applying analytical methods to derive, simplify, solve and analyze problems involving algebraic fractions, with an emphasis on simplification and reduction of algebraic functions, as well as the restrictive domains of algebraic function.

Rational Equations: Students will demonstrate an understanding of rational equations by applying analytical methods to derive, simplify, solve, and analyze problems involving rational equations.

Functions: Students will demonstrate an understanding of functions by applying analytical and graphing methods to derive, simplify, solve and analyze problems involving functions, with an emphasis on domain, range, zeros, parabolas, extrema of a function, increasing/decreasing functions, and transformations of various types of functions, including quadratic and exponential functions.

Algebra II Honors Competencies:

Inequalities: Students will demonstrate an understanding of inequalities by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving algebraic inequalities, including higher degree inequalities, systems of inequalities, multi-variable inequalities and absolute value inequalities.

Quadratic Equations and Functions: Students will demonstrate an understanding of quadratic equations by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving quadratic equations, with an emphasis on Vieta's Theorem, parabolas, extrema of a quadratic function, optimization problems, and geometry involving parabolas.

Algebraic Fractions: Students will demonstrate an understanding of algebraic fractions by applying analytical methods to derive, simplify, solve and analyze problems involving algebraic fractions, with an emphasis on simplification and reduction of algebraic functions, as well as the restrictive domains of algebraic function.

Higher Degree Special Products: Students will demonstrate an understanding of higher degree special products by applying analytical methods to derive, simplify, solve and analyze problems involving higher degree special products, with an emphasis on the sum and difference of cubes, as well as higher powers of a binomial and their connection to Pascal's Triangle.

Algebraic Equations and Inequalities: Students will demonstrate an understanding of algebraic equations and inequalities by applying analytical methods to derive, simplify, solve, and analyze problems involving rational equations, rational inequalities, and equations involving radicals.

Relations and Functions: Students will demonstrate an understanding of functions by applying analytical and graphing methods to derive, simplify, solve and analyze problems involving functions, with an emphasis on domain, range, zeros, increasing/decreasing functions, even/odd functions, exponential functions, transformations of functions, piecewise functions, function composition, and equations of both vertical and horizontal parabolas. We explore transformations of these functions, as well as the relationships between them.

PreCalculus Accelerated Competencies:

Algebraic Fractions: Students will demonstrate an understanding of algebraic fractions by applying analytical methods to derive, simplify, solve and analyze problems involving algebraic fractions, with an emphasis on simplification and reduction of algebraic functions, as well as the restrictive domains of algebraic function.

Inequalities: Students will demonstrate an understanding of inequalities by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving algebraic inequalities, including higher degree inequalities, systems of inequalities, multi-variable inequalities and absolute value inequalities.

Exponents and Radicals: Students will demonstrate an understanding of exponents and radicals by applying analytical methods to derive, simplify, solve, and analyze problems involving exponents and radicals, with an emphasis on exponential and radical equations and inequalities.

Logarithms: Students will demonstrate an understanding of logarithms by applying analytical methods to derive, simplify, solve, and analyze problems involving logarithms, including simplification of logarithms, logarithmic equations, and natural logarithms.

Numerical Sequences and Series: Students will demonstrate an understanding of numerical sequences and series by applying analytical methods to derive, simplify, solve, and analyze problems involving algebraic and geometric sequences and series.

Complex Numbers: Students will demonstrate an understanding of complex numbers by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving complex numbers.

Relations and Functions: Students will demonstrate an understanding of relations and functions by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving relations and functions, including root functions, piecewise functions, greatest integer functions, composite functions, inverse functions, and odd/even functions, as well as their transformations.

PreCalculus Advanced Competencies:

Exponents and Radicals: Students will demonstrate an understanding of exponents and radicals by applying analytical methods to derive, simplify, solve, and analyze problems involving exponents and radicals, with an emphasis on exponential and radical equations and inequalities.

Logarithms: Students will demonstrate an understanding of logarithms by applying analytical methods to derive, simplify, solve, and analyze problems involving logarithms, including simplification of logarithms, logarithmic equations, logarithmic inequalities, and natural logarithms.

Numerical Sequences and Series: Students will demonstrate an understanding of numerical sequences and series by applying analytical methods to derive, simplify, solve, and analyze problems involving algebraic and geometric sequences and series.

Complex Numbers: Students will demonstrate an understanding of complex numbers by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving complex numbers.

Relations and Functions: Students will demonstrate an understanding of relations and functions by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving relations and functions, including root functions, piecewise functions, greatest integer functions, composite functions, inverse functions, and odd/even functions, as well as their transformations.

Polynomial Functions: Students will demonstrate an understanding of polynomial functions by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving polynomial functions, with an emphasis on solving higher degree polynomial functions using methods such as polynomial/synthetic division, Remainder Theorem, Factor Theorem, Linear Factorization Theorem, Rational Roots Theorem, and Irrational/Complex Conjugate Roots Theorem.

PreCalculus Honors Competencies:

Exponents and Radicals: Students will demonstrate an understanding of exponents and radicals by applying analytical methods to derive, simplify, solve, and analyze problems involving exponents and radicals, with an emphasis on exponential and radical equations and inequalities.

Logarithms: Students will demonstrate an understanding of logarithms by applying analytical methods to derive, simplify, solve, and analyze problems involving logarithms, including simplification of logarithms, logarithmic equations, logarithmic inequalities, and natural logarithms.

Numerical Sequences and Series: Students will demonstrate an understanding of numerical sequences and series by applying analytical methods to derive, simplify, solve, and analyze problems involving algebraic and geometric sequences and series.

Complex Numbers: Students will demonstrate an understanding of complex numbers by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving complex numbers.

Relations and Functions: Students will demonstrate an understanding of relations and functions by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving relations and functions, including root functions, exponential functions, logarithmic functions, piecewise functions, greatest integer functions, composite functions, inverse functions, and odd/even functions, as well as their transformations.

Polynomial Functions: Students will demonstrate an understanding of polynomial functions by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving polynomial functions, with an emphasis on solving higher degree polynomial functions using methods such as polynomial/synthetic division, Remainder Theorem, Factor Theorem, Linear Factorization Theorem, Rational Roots Theorem, and Irrational/Complex Conjugate Roots Theorem.

Introduction to Calculus Advanced Competencies:

Sets: Students will demonstrate an understanding of sets by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving sets, with an emphasis on intersections, unions, cardinality, and complements.

Counting: Students will demonstrate an understanding of combinatorics by applying analytical methods to derive, simplify, solve and analyze problems involving combinatorics, with an emphasis on combinations and permutations.

Binomial Theorem: Students will demonstrate an understanding of Binomial Theorem by applying analytical methods to derive, simplify, solve and analyze problems involving Binomial Theorem.

Limits and Continuity: Students will demonstrate an understanding of limits and continuity by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving limits and continuity, including a study of the limits of rational functions.

Derivatives and Applications: Students will demonstrate an understanding of derivatives by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving derivatives, with an emphasis on derivative functions, differentiation rules, local/absolute extrema, chain rule, derivatives of exponential and logarithmic functions, and optimization.

Probability: Students will demonstrate an understanding of probability by applying analytical methods to derive, simplify, solve and analyze problems involving probability.

Statistics: Students will demonstrate an understanding of basic statistics by applying analytical methods to derive, simplify, solve and analyze problems involving basic statistics, including a look at regression analysis and the Least Squares Method

Mathematical Induction: Students will demonstrate an understanding of mathematical induction by applying analytical methods to derive, simplify, solve and analyze problems involving mathematical induction.

Partial Fraction Decomposition: Students will demonstrate an understanding of partial fraction decomposition by applying analytical methods to derive, simplify, solve and analyze problems involving partial fraction decomposition.

Introduction to Calculus Honors Competencies:

Sets: Students will demonstrate an understanding of sets by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving sets, with an emphasis on intersections, unions, cardinality, and complements.

Counting: Students will demonstrate an understanding of combinatorics by applying analytical methods to derive, simplify, solve and analyze problems involving combinatorics, with an emphasis on combinations and permutations.

Binomial Theorem: Students will demonstrate an understanding of Binomial Theorem by applying analytical methods to derive, simplify, solve and analyze problems involving Binomial Theorem.

Limits and Continuity: Students will demonstrate an understanding of limits and continuity by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving limits and continuity, including a study of the limits of rational functions, and area under a curve.

Derivatives and Applications: Students will demonstrate an understanding of derivatives by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving derivatives, with an emphasis on derivative functions, differentiation rules, local/absolute extrema, chain rule, derivatives of exponential, logarithmic, and trigonometric functions, and optimization.

Probability: Students will demonstrate an understanding of probability by applying analytical methods to derive, simplify, solve and analyze problems involving probability.

Statistics: Students will demonstrate an understanding of basic statistics by applying analytical methods to derive, simplify, solve and analyze problems involving basic statistics, including a look at regression analysis and the Least Squares Method.

Mathematical Induction: Students will demonstrate an understanding of mathematical induction by applying analytical methods to derive, simplify, solve and analyze problems involving mathematical induction.

Partial Fraction Decomposition: Students will demonstrate an understanding of partial fraction decomposition by applying analytical methods to derive, simplify, solve and analyze problems involving partial fraction decomposition.

Geometry II Competencies

Parallel Lines: Students will demonstrate an understanding of parallel lines by applying analytical and graphical methods to derive, prove, solve and analyze problems involving parallel lines, with an emphasis on statement-reason proofs.

Congruent Triangles: Students will demonstrate an understanding of congruent triangles by applying analytical and graphical methods to derive, prove, solve and analyze problems involving congruent triangles, with an emphasis on statement-reason proofs.

Isosceles Triangles: Students will demonstrate an understanding of isosceles triangles by applying analytical and graphical methods to derive, prove, solve and analyze problems involving isosceles triangles, with an emphasis on base angles theorem, as well as the altitudes, medians and angle bisectors of an isosceles triangle. There is also an emphasis on statement-reason proofs.

Right Triangles: Students will demonstrate an understanding of right triangles by applying analytical and graphical methods to derive, prove, solve and analyze problems involving right triangles, with an emphasis on Pythagorean Theorem, and Special Right triangles. There is also an emphasis on statement-reason proofs.

Introduction to Circles: Students will demonstrate an understanding of circles by applying analytical and graphical methods to derive, prove, solve and analyze problems involving circles, with an emphasis on area and circumference.

Quadrilaterals: Students will demonstrate an understanding of quadrilaterals by applying analytical and graphical methods to derive, prove, solve and analyze problems involving quadrilaterals, with an emphasis on parallelograms, rectangles, rhombi, squares, and trapezoids. There is also an emphasis on statement-reason proofs.

Geometry III Competencies

Special Right Triangles: Students will demonstrate an understanding of special right triangles by applying analytical and graphical methods to derive, prove, solve and analyze problems involving special right triangles, with an emphasis on 30-60-90 and isosceles right triangles.

Triangle Inequalities: Students will demonstrate an understanding of triangle inequalities by applying analytical and graphical methods to derive, prove, solve and analyze problems involving triangle inequalities, with an emphasis on statement-reason proofs.

Area Comparison and Applications: Students will demonstrate an understanding of area comparison and applications by applying analytical and graphical methods to derive, prove, solve and analyze problems involving area comparison and applications.

Midsegments in Triangles and Trapezoids: Students will demonstrate an understanding of midsegments in triangles and trapezoids by applying analytical and graphical methods to derive,

prove, solve and analyze problems involving midsegments, with an emphasis on statement-reason proofs.

Similarity: Students will demonstrate an understanding of similarity by applying analytical and graphical methods to derive, prove, solve and analyze problems involving similarity, including Thales' Intercepts Theorem, proportional segments, special similarities of right triangles, and transformations. There is also an emphasis on statement-reason proofs.

Circles: Students will demonstrate an understanding of circles by applying analytical and graphical methods to derive, prove, solve and analyze problems involving circles, with an emphasis on properties of tangents, central angles, inscribed angles, angles formed by secants, and inscribed and circumscribed polygons. There is also an emphasis on statement-reason proofs.

AP Calculus BC Competencies

Limits and Continuity: Students will demonstrate an understanding of limits and continuity by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving limits and continuity.

Differentiation: Students will demonstrate an understanding of differentiation by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving differentiation, with an emphasis on properties and applications of derivatives.

Integration: Students will demonstrate an understanding of integration by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving integration, with an emphasis on properties and applications of integration.

Differential Equations: Students will demonstrate an understanding of differential equations by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving differential equations.

Parametric Equations: Students will demonstrate an understanding of parametric equations by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving parametric equations.

Polar Coordinates: Students will demonstrate an understanding of polar coordinates by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving polar coordinates.

Infinite Sequences and Series: Students will demonstrate an understanding of infinite sequences and series by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving infinite sequences and series.

Note: this course prepares students to take Collegeboard's AP Calculus BC Exam.

AP Statistics Competencies

One-Variable and Two-Variable Data: Students will demonstrate an understanding of one and two variable data by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving the exploration of one-variable and two-variable data.

Collecting Data: Students will demonstrate an understanding of data collection by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving data collection.

Probability, Random Variables, and Probability Distributions: Students will demonstrate an understanding of probability, random variable and probability distributions by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving probability, random variables and probability distributions.

Sampling Distributions: Students will demonstrate an understanding of sampling distributions by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving sampling distributions.

Inference for Categorical Data: Students will demonstrate an understanding of inference for categorical data by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving inferences for categorical data, with an emphasis on proportions and chi-squared tests.

Inference for Quantitative Data: Students will demonstrate an understanding of inference for quantitative data by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving inference for quantitative data, with an emphasis on means and slopes.

Note: This class prepares students for Collegeboard's AP Statistics exam

Analytic Geometry and Intro to Trigonometry Competencies

Coordinate Geometry: Students will demonstrate an understanding of coordinate geometry by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving coordinate geometry, including problems on linear equations, measuring distance on a coordinate plane, and conic sections.

Intro to Trigonometry: Students will demonstrate an understanding of introductory trigonometry by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving introductory trigonometry, including problems on trigonometric ratios, trigonometric identities, general angles, radians, and the Law of Sines/Cosines.

Lines, Planes and Solids: Students will demonstrate an understanding of three-dimensional geometry by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving lines, planes and solids, with an emphasis on pyramids, prisms, cones, inscribed solids and similarity.

Vectors: Students will demonstrate an understanding of vectors by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving vectors, with an emphasis on magnitude, direction, and vector operations.

Matrices and Determinants: Students will demonstrate an understanding of matrices and determinants by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving matrices and determinants, with an emphasis on matrix operations, matrix systems, determinants, and inverse matrices.

Trigonometry Advanced Competencies:

Coordinate Geometry: Students will demonstrate an understanding of coordinate geometry by applying analytical and graphical methods to derive, simplify, solve, and analyze problems involving coordinate geometry, with an emphasis on segments in a plane, distances on a plane, and conic sections

Introductory Trigonometry: Students will demonstrate an understanding of introductory trigonometry by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving introductory trigonometry, including problems on trigonometric ratios, trigonometric identities, general angles, radians, reduction formulas and the Law of Sines/Cosines.

Trigonometric Identities and Operations: Students will demonstrate an understanding of trigonometric identities by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving trigonometric identities and operations, including sum and difference identities, double-angle and half-angle identities, and sums and products identities.

Trigonometric Functions, Graphs and Inverse Functions: Students will demonstrate an understanding of trigonometric functions by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving trigonometric functions, with an emphasis on graphs of trigonometric functions, inverse trigonometric functions and their graphs, and trigonometric equations.

Polar Coordinates: Students will demonstrate an understanding of polar coordinates by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving polar coordinates, with an emphasis on polar coordinate systems, polar forms of complex numbers, and de Moivre's Theorem.

Polar Graphs: Students will demonstrate an understanding of polar graphs by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving polar graphs, with an emphasis on polar curves, limaçons, cardioids, rose curves, circles, spirals and lemniscates.

Trigonometry Honors Competencies
Introductory Trigonometry: Students will demonstrate an understanding of introductory trigonometry by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving introductory trigonometry, including problems on trigonometric ratios, trigonometric identities, general angles, radians, reduction formulas and the Law of Sines/Cosines.

Trigonometric Identities and Operations: Students will demonstrate an understanding of trigonometric identities by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving trigonometric identities and operations, including sum and difference identities, double-angle and half-angle identities, and sums and products identities.

Trigonometric Functions, Graphs and Inverse Functions: Students will demonstrate an understanding of trigonometric functions by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving trigonometric functions, with an emphasis on graphs of trigonometric functions, inverse trigonometric functions and their graphs, and

trigonometric equations.

Polar Coordinates: Students will demonstrate an understanding of polar coordinates by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving polar coordinates, with an emphasis on polar coordinate systems, polar forms of complex numbers, and de Moivre's Theorem.

Polar Graphs: Students will demonstrate an understanding of polar graphs by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving polar graphs, with an emphasis on polar curves, limaçons, cardioids, rose curves, circles, spirals and lemniscates.

Parametric Equations: Students will demonstrate an understanding of parametric equations by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving parametric equations.

Trigonometric Limits: Students will demonstrate an understanding of trigonometric limits by applying analytical and graphical methods to derive, simplify, solve and analyze problems involving trigonometric limits, including an introduction to derivatives of trigonometric functions.

7.0   **A plan for recording student progress in meeting expected student outcomes for each course of instruction [Ed 1403.01(b)(1)(c)].**

RSM created a very interactive learning culture where students are highly engaged in learning over the course of our 36 lesson program. Students are monitored individually by instructors to ensure they are showing good progress. Students are graded daily on classwork (which may include quizzes, tests and participation), as well as homework assignments. Students are also tested at the completion of each unit with a chapter test, and at the end of the year, a final test is administered. Report cards are mailed out to families twice per year, with a separate grade for tests and for homework.

To achieve competency in a particular unit, students must score at least a C on each unit test, and must average at least a 70% in all homeworks for that unit. Students will be given an opportunity to retake any tests, and an opportunity to resubmit any homework assignments. RSM offers free homework help tutoring to students who require supplemental assistance, and homework is also reviewed at the start of each class, giving students the opportunity to ask questions and gain clarification on how a certain problem can be approached. Students must also receive at least a C on the final test in order to move onto the next level, and, just as with unit tests, students have the opportunity to retake the final test, and to seek help from their teacher if needed.

RSM also has a shortened summer school program, consisting of twelve classes over the course of six weeks. This serves as a great focus on the fundamentals learned throughout the year, and it is an encouraged path for students who may struggle during the school year.

Twice per academic year, all students across RSM nationwide take a standardized Principal's Test to ensure quality across all locations. This test assesses both the quality of the teachers, and the quality of program delivery.

8.0   **A description of how the assessment of student learning outcomes will be done [Ed 1403.01(b)(1)(d)].**

As mentioned above, RSM classes are very interactive; teachers and students are actively engaged throughout each lesson. During a class, a teacher is able to assess the level of understanding and proficiency of the students through various methods through the guidance of lesson plans developed by the training department.

Lessons consist of Socratic discussion, where teachers instruct students through probing questions, and students work collaboratively to understand advanced mathematical concepts. Our students are encouraged to illustrate why their solutions to problems are the most effective, efficient and logical; this often leads to lively debate, which deepens understanding and empowers students to think through concepts in a logical way. Students are also given opportunities to work in groups, to show their conceptual understanding on the board, and to master the problem solving process individually. Quizzes are given daily and tests are assigned at the end of each unit. Oftentimes, games are used to better illustrate certain concepts, and students are immersed in an interactive environment that encourages them to make connections between concepts.

RSM Report Cards

Report cards are given out twice per year, with a separate section for classwork and homework, as well as grades for each day. Below is an example of such a report card:

REPORT CARD
January To June

RSM — Russian School of Mathematics

Student	
Class	Alg I Hon-St (on Sat at *RSM - Acton*)
Teacher	

	Student Average	Class Average	Missing/ Incomplete
Classwork	A+	A+	0%
Homework	A+	A+	0%
Attendance	18 out of 20 Classes [90%]		

Notes to Parents

Behavior In Class was always friendly, polite, well-behaved, and respectful of classmates and the teacher. Demonstrated very good working habits and a positive attitude towards learning.

Student Engagement: is a bright, hardworking student who always actively participated in class work and discussions and worked very well in groups and independently 's serious attitude towards studying and desire to learn are truly exemplary.

Homework: consistently came prepared to class with homework showing great effort and notable quality.

Overall: is such a dedicated learner! It was a pleasure seeing persist and achieve great results this year. Well done!

Conceptual Understanding: shows genuine interest in mathematics and demonstrates good logical thinking and flexibility of the mind, as well as great work ethic, persistence, and intellectual curiosity made great progress this year mastering all the content of the course and going above and beyond.

Lesson 28	Date: Apr 16, 2022		Topic: Lesson 28. Using systems to solve word problems	
Assignments	Homework	Classwork	Independent work 1	Review
	A+	A+	A+	A+

Lesson 29	Date: Apr 30, 2022		Topic: 3 Variable Systems, Chapter Test
Assignments	Homework	Classwork	Chapter 7 Test
	A	A	A-

Lesson 30	Date: May 07, 2022		Topic: Sets.
Assignments	Homework	Review. Linear Functions	Classwork
	A	A	A

Lesson 31	Date: May 14, 2022		Topic: Sets and Subsets. Intersection and Union of Sets.
Assignments	Homework	Quiz	Classwork
	A+	B	A

Lesson 32	Date: May 21, 2022	Topic: Cardinality of Sets.
Assignments	Homework	
	A+	
Notes	DID NOT ATTEND.	

Lesson 33	Date: May 28, 2022		Topic: Difference of sets.
Assignments	Homework	HW Quiz	Classwork
	A	A+	A+

RSM proprietary self-learning software

RSM uses a unique, state-of-the-art proprietary software to assist students during weekly homework. This system provides instant feedback to both students and teachers, and can even recommend areas of improvement for students based on prior assignments. It is an essential tool for teachers to plan around the needs of each individual class, and allows teachers to review more challenging homework problems in class. The same program is integrated for use with live online instruction as well.

Below is a student's view, and a teacher's view of a sample homework assignment:

Existence of three different levels within each grade taught at RSM ensures that each child is placed at the level that is the most beneficial for his learning based on the results of all of the above - teacher's observation, homework and classwork grades, and assessment tests.

9.0   The number of credits each proposed course of instruction will fulfill [Ed 1403.01(b)(1)(e)].

Each class will be equivalent to a full-year mathematics course in high school (1.0 credit). The equivalent required subject for graduation from Ed 306.27(v) for which students completing an approved RSM Learn Everywhere course shall be in High School Mathematics.

10.0   A description of the competency-based grading system to be used for each proposed course of instruction [Ed 1403.01(b)(1)(e)].

To achieve competency in a particular unit, students must score at least a C on each unit test, and must average at least a 70% in all homeworks for that unit. Students will be given an opportunity to retake any tests, and an opportunity to resubmit any homework assignments. RSM offers free homework help tutoring to students who require supplemental assistance, and homework is also reviewed at the start of each class, giving students the opportunity to ask questions and gain clarification on how a certain problem can be approached. Students must also receive at least a C on the final test in order to move onto the next level, and, just as with unit tests, students have the opportunity to retake the final test, and to seek help from their teacher if needed.

11.0   A description of methods for admission which shall not be designed, intended, or used to discriminate or violate individual civil rights in any manner prohibited by law [Ed 1403.01(b)(2)(a)].

All students are welcome at RSM. Prior to enrollment, each student meets with the principal, who assesses the appropriate class for the student to enroll in and makes a recommendation. RSM does not discriminate based on race, religion, gender, sexual orientation, immigration status, color, creed, or disability.

12.0   A description of how the program will liaison with the local education agency (LEA) for students with an education plan pursuant to section 504 of the Rehabilitation Act [Ed 1403.01(b)(2)(b)].

At the time of enrollment, RSM offers parents the opportunity to disclose any information regarding ongoing 504 education plan related accommodations and modifications required for their child. With the parent's permission, RSM will contact the student's Local Education Agency (LEA) to coordinate recommended 504 accommodations and/or modifications in the RMS programs. Although RSM's instructors are not explicitly certified to work with students with 504 plans, they are caring, patient and compassionate and can work with the student's LEA representative to understand how to implement recommended accommodations and/or modifications. If RSM determines it is unable to provide the required accommodations and/or modifications for a student, the parents will be informed before committing to enrolling their child in an RSM program.

13.0   A description of how the program will liaison with the LEA for a student with disabilities, consistent with the student's IEP [Ed 1403.01(b)(2)(c)].

RSM gives all parents the opportunity to disclose any sorts of disabilities, including any related Individualized Education Program (IEPs). If requested, RSM will work with the parent to contact the student's Local Education Agency (LEA) to assist in the coordination of the student's IEP to I include, but not be limited to, the required special education programs, support services, and least restrictive environment. At the parent's request, an RSM representative will participate in IEP team meetings that discuss revisions to the student's IEP needed to participate in an RSM program. RSM will also coordinate with the LEA in fulfilling the LEA's responsibility to provide any special education, related services, supplementary aids and services, accommodations, and modifications the IEP team has determined the student needs. The provision of these services is not the direct responsibility of RSM.

14.0   A statement that the applicant understands that it has certain responsibilities, pursuant to Section 504 of the Rehabilitation Act, if it receives federal funds, or the Americans with Disabilities Act, as amended, to provide students with disabilities with equal access and equal

opportunities to participate in the learn everywhere program, including by providing the student with reasonable accommodations [Ed 1403.01(b)(2)(d)].

RMS understands that it has certain responsibilities, pursuant to Section 504 of the Rehabilitation Act, if it receives federal funds, or the Americans with Disabilities Act, as amended, to provide students with disabilities with equal access and equal opportunities to participate in the learn everywhere program, including by providing the student with reasonable accommodations.

15.0   A description of facilities to be used for educational instruction and a description of how the facilities will meet the priorities of the program [Ed 1403.01(b)(3)(a)].

RMS is located in a Class A office building that is handicap accessible and safe. It is divided into 7 classrooms (as our program is almost entirely classroom-based to facilitate cooperative learning). There are also 2 administrative offices, as well as a front desk to interact with parents and monitor exits to the building. There are 4 available bathrooms for use, all handicap accessible. There is also a room for teachers to make copies and organize materials.

16.0   A statement affirming that the facilities shall comply with all applicable federal and state health and safety laws, rules, and regulations [Ed 1403.01(b)(3)(b)].

The facilities are in compliance with any and all applicable codes, including (but not limited to) those regarding fire safety, barrier-free access, and disability access.

17.0   Disclosure of insurance, if any, which would cover the participants in the Learn Everywhere program [Ed 1403.01(b)(4)].

RSM agrees to disclose to Learn Everywhere program participants any insurance RSM maintains, which would cover the participants in the Learn Everywhere program.