Department of Education and Early Childhood Development

Mathematics 9 & 10

Mathematics 9, Geometry, Measurement and Finance 10,
and Number, Relations and Functions 10

2020-2021 Prioritized Curriculum

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Acknowledgements

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Background and Rationale

Due to the reduced learning time presented by school closures for COVID-19 and the uncertainty of what the 2020-2021 year will bring, the Department of Education and Early Childhood Development (EECD) is releasing a prioritized curriculum for select high school courses. This document provides a list of required outcomes that will frame the learning expectations for students and offer time for effective teaching practices.

A team of New Brunswick high school educators and Learning Specialists from EECD worked together to identify and curate a list of **Required Outcomes** for the 2020-2021 school year. Any outcomes that were not identified as being *required* were categorised as "**Remaining Outcomes**" and can be set aside for future learning or taught if time permits.

The *Required Outcomes* outlined in this document have been identified as the best representation of instructional outcomes to engage learners and contribute to student readiness for post-secondary mathematics and science studies and/or future life pursuits.

Identification of the *Required Outcomes* is but one of the necessary elements which will support learners in the province. Teachers will also consider how to engage students in deep and meaningful ways within the framework of the new learning environments (online, blended, and/or face-to-face).

Mathematics 9

The curriculum document can be accessed here / Le programme d'études est accessible [ici](ici).

Required Outcomes	Remaining Outcomes
N1: Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by: representing repeated multiplication using powers; using patterns to show that a power with an exponent of zero is equal to one; solving problems involving powers.	**N4:** Explain and apply the order of operations, including exponents, with and without technology.
	N6: Determine an approximate square root of positive rational numbers that are non-perfect squares.
N2: Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents.	**PR4:** Explain and illustrate strategies to solve single variable linear inequalities with rational coefficients within a problem-solving context.
N3: Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers.	**PR5:** Demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2).
N5: Determine the square root of positive rational numbers that are perfect squares.	**SS1:** Solve problems and justify the solution strategy using circle properties, including: the perpendicular from the centre of a circle to a chord bisects the chord; the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc; the inscribed angles subtended by the same arc are congruent; a tangent to a circle is perpendicular to the radius at the point of tangency.
PR1: Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.	
PR2: Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.	
PR3: Model and solve problems using linear equations, pictorially and symbolically.	**SS5:** Demonstrate an understanding of line and rotation symmetry.
PR6: Model, record and explain the operations of addition and subtraction of polynomial expressions, pictorially and symbolically (limited to polynomials of degree less than or equal to 2).	**SP1:** Describe the effect of: bias; use of language; ethics; cost; time and timing; privacy; cultural sensitivity on the collection of data.
	SP2: Select and defend the choice of using either a population or a sample of a population to answer a question.
PR7: Model, record and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, pictorially and symbolically.	**SP3:** Construct, label, and interpret histograms to solve problems.
	SP4: Develop and implement a project plan for the collection, display and analysis of data by: formulating a question for investigation; choosing a data collection method that includes social considerations; selecting a population or a sample; collecting the data; displaying the collected data in an appropriate manner drawing conclusions to answer the question.
SS2: Determine the surface area of composite 3-D objects to solve problems.	
SS3: Demonstrate an understanding of similarity of polygons.	
SS4: Draw and interpret scale diagrams of 2-D shapes.	**SP5:** Demonstrate an understanding of the role of probability in society.

Geometry, Measurement and Finance 10

The curriculum document can be accessed [here](#) / Le programme d'études est accessible [ici](#).

Required Outcomes	Remaining Outcomes
Note: A1 should be assessed through other outcomes.	**A1:** Solve problems that require the manipulation and application of formulas related to: perimeter, area, volume, capacity, the Pythagorean theorem, primary trigonometric ratios, income. currency exchange, interest and finance charges.
N1: Solve problems that involve unit pricing and currency exchange (focus on finding and using pricing and currency tools, not computation), using proportional reasoning.	
N2: Demonstrate an understanding of income, including: wages, salary, contracts, commission, piecework, and calculating gross pay and net pay.	**G1:** Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies.
N3: Demonstrate an understanding of financial institution services used to access and manage finances.	**G4:** Solve problems that involve angle relationships between parallel, perpendicular and transversal lines.
N4: Demonstrate an understanding of compound interest (Focus on understanding, not computation).	**G5:** Demonstrate an understanding of angles, including acute, right, obtuse, straight and reflex, by: drawing, replicating and constructing, bisecting, and solving problems.
N5: Demonstrate an understanding of credit options, including: credit cards, and loans.	
G2: Demonstrate an understanding of the Pythagorean theorem by: identifying situations that involve right triangles, verifying the formula, applying the formula, solving problems.	**M5:** Solve problems, using SI and Imperial units, that involve the surface area and volume of 3-D objects, including right cones, right cylinders, right prisms, right pyramids, and spheres.
G3: Demonstrate an understanding of primary trigonometric ratios (sine, cosine, tangent) by: applying similarity to right triangles, generalizing patterns from similar right triangles, applying the primary trigonometric ratios, and solving problems.	
Note: M1-M3: focus on relationships, estimation, and application of conversions by finding and using conversion tools.	
M1: Demonstrate an understanding of the Système International (SI) by describing the relationships of the units for length, area, volume, capacity, mass and temperature.	
M2: Demonstrate an understanding of the Imperial system by: describing the relationships of the units for length, area, volume, capacity, mass and temperature.	
M3: Solve problems, using SI and Imperial units, that involve linear measurement using estimation and measurement strategies.	
M4: Solve problems, using SI and Imperial systems, that involve area measurements of regular, composite and irregular 2-D shapes, including decimal and fractional measurements, and verify the solutions.	

Number, Relations and Functions 10

The curriculum document can be accessed [here](#) / Le programme d'études est accessible [ici](#).

Required Outcomes	Remaining Outcomes
AN1: Demonstrate an understanding of factors of whole numbers by determining the prime factors and greatest common factor.	**AN1:** Least common multiple, square root, cube root.
AN4: Demonstrate an understanding of the multiplication of polynomial expressions (limited to monomials, binomials and trinomials), pictorially and symbolically.	**AN2:** Demonstrate an understanding of irrational numbers by representing, identifying and simplifying irrational numbers, ordering irrational numbers.
AN5: Demonstrate an understanding of common factors, pictorially and symbolically.	**AN3:** Demonstrate an understanding of powers with integral and rational exponents.
RF3: Demonstrate an understanding of slope with respect to rise and run, line segments and lines, rate of change, parallel lines, perpendicular lines.	**AN5:** Trinomial factoring.
Note: RF4 should be embedded with other RF outcomes and assessed in context.	**RF1:** Interpret and explain the relationships among data, graphs and situations.
RF4: Describe and represent linear relations, using words, ordered pairs, tables of values, graphs, equations.	**RF2:** Demonstrate an understanding of relations and functions.
RF5: Determine the characteristics of the graphs of linear relations, including the intercepts, slope, domain, range.	**RF8:** Solve problems that involve the distance between two points and the midpoint of a line segment.
RF6: Relate linear relations expressed in: slope-intercept form $y = mx + b$, general form $Ax + By + C = 0$.	**RF10:** Solve problems that involve systems of linear equations in two variables, graphically and algebraically.
RF7: Determine the equation of a linear relation, given: a graph, a point and the slope, two points, a point and the equation of a parallel or perpendicular line, a scatter plot.	
Note: RF9 should be embedded with other RF outcomes and assessed in context.	
RF9: Represent a linear function, using function notation.	