

BC Draft Curriculum - Mathematics - Progressive Matrix
PROGRESSION IS HIGHLIGHTED IN THE FOLLOWING DOCUMENT VIA **BOLDED** TEXT.

| Kindergarten | Grade 1 BIG IDEAS | Grade 2 | Grade 3 BIG IDEAS | Grade 4 BIG IDEAS |
|--|--|---|---|---|
| Numbers tell how much and how many and can be represented in many different forms. | Numbers tell how much and how many and can be represented in many different forms. | Numbers tell how much and how many and can be represented in many different forms. | Numbers have values and can be described , represented, and calculated in many different ways . | Number relationships are the foundation of mathematical communication . |
| Patterns represented in various ways show repeated regularities. | Patterns represented in various ways show repeated regularities. | Patterns represented in various ways show repeated regularities. | Patterns represent identified regularities and can be used to solve problems . | |
| Objects and shapes can be described, measured, and compared in many ways. | Objects and shapes can be described, measured, and compared in many ways. | Objects and shapes can be described, measured, and compared in many ways. | Objects and shapes can be described using attributes , and can be measured, constructed , compared, and sorted in many ways | |
| Information can be collected and represented by several methods. | Information can be collected and represented by several methods. | Information can be collected and represented by several methods. | Information can be collected and represented in various forms that allow us to make interpretations . | Data can be collected, organized, and displayed in many different ways . |
| | | | Units of measure can be used to compare and determine the measurable values of objects and shapes . | Units of measure can be used to compare and determine the measurable values of objects and shapes. |
| | | | Algebraic symbols can be used to represent, model, and analyze scenarios . | Algebraic symbols can be used to represent, model, and analyze scenarios. |
| | | | | Time is arranged into measurable segments that can help us organize our daily lives . |
| <p>Curricular Competencies <i>Students will be able to problem solve.</i></p> <p>Analyzing a problem</p> <ul style="list-style-type: none"> Use multiple strategies, including real-life concrete and pictorial contexts, to develop, construct, and apply mathematical understanding through play, inquiry, and problem solving Estimate reasonably using whole-number benchmarks of 5 <p>• Develop mental math strategies and abilities to make sense of quantities up to 10</p> <p>Reasoning and proof</p> <ul style="list-style-type: none"> Use reasoning and logic to explore and make connections <p>Communicating</p> <ul style="list-style-type: none"> Communicate in many ways (concretely, pictorially, symbolically, and using simple spoken or written language) to express, describe, explain, represent, and apply mathematical ideas <p>Connecting</p> <ul style="list-style-type: none"> Visualize and describe mathematical concepts Connect mathematical concepts to each other and make mathematical connections to the real world <p>Representing</p> <ul style="list-style-type: none"> Develop mathematical understanding through concrete, pictorial, and symbolic representations Use technology appropriately to explore mathematics, solve problems, record, communicate, and represent thinking | <p>Curricular Competencies <i>Students will be able to problem solve.</i></p> <p>Analyzing a problem</p> <ul style="list-style-type: none"> Use multiple strategies, including real-life concrete and pictorial contexts, to develop, construct, and apply mathematical understanding through play, inquiry, and problem solving Estimate reasonably using whole-number benchmarks of 10 and personal referents (such as hands, arms, etc.) <p>• Develop mental math strategies and abilities to make sense of sums and differences up to 20</p> <p>Reasoning and proof</p> <ul style="list-style-type: none"> Use reasoning and logic to explore and make connections <p>Communicating</p> <ul style="list-style-type: none"> Communicate in many ways (concretely, pictorially, symbolically, and using simple spoken or written language) to express, describe, explain, represent, and apply mathematical ideas <p>Connecting</p> <ul style="list-style-type: none"> Visualize and describe mathematical concepts Connect mathematical concepts to each other and make mathematical connections to the real world <p>Representing</p> <ul style="list-style-type: none"> Develop mathematical understanding through concrete, pictorial, and symbolic representations Use technology appropriately to explore mathematics, solve problems, record, communicate, and represent thinking | <p>Curricular Competencies <i>Students will be able to problem solve.</i></p> <p>Analyzing a problem</p> <ul style="list-style-type: none"> Use an increasing variety of strategies to develop, construct, and apply mathematical understanding through problem solving <p>• Estimate quantities reasonably, using large whole-number and fraction benchmarks, and the reasonableness of large whole-number calculations</p> <p>• Develop and apply mental math strategies for all operations to deepen understanding and develop computational fluency</p> <p>Reasoning and proof</p> <ul style="list-style-type: none"> Reason and use logic to explore, make connections, analyze observations, make generalizations from patterns, and test these generalizations <p>Communicating</p> <ul style="list-style-type: none"> Communicate in many ways (concretely, pictorially, symbolically, and using spoken or written language) to express, describe, explain, represent, clarify, modify, reinforce, and apply mathematical ideas <p>Connecting</p> <ul style="list-style-type: none"> Visualize and describe mathematical concepts Connect mathematical concepts to each other, and make mathematical connections to the real world <p>Representing</p> <ul style="list-style-type: none"> Develop mathematical understanding through concrete, pictorial, and symbolic representations Use technology appropriately to explore mathematics, solve problems, record, communicate, and represent thinking | <p>Curricular Competencies <i>Students will be able to problem solve.</i></p> <p>Analyzing a problem</p> <ul style="list-style-type: none"> Use multiple strategies to develop, construct, and apply mathematical understanding through problem solving <p>• Estimate quantities reasonably using large whole-number, decimal, and fraction benchmarks, and the reasonableness of large whole number and decimal calculations</p> <p>• Develop and apply mental math strategies for all operations to deepen understanding and develop fluency in making computations</p> <p>Reasoning and proof</p> <ul style="list-style-type: none"> Reason and use logic to explore and make connections, analyze observations, make generalizations from patterns, and test these generalizations <p>Communicating</p> <ul style="list-style-type: none"> Communicate in many ways (concretely, pictorially, symbolically, and using spoken and written language) to express, describe, explain, represent, clarify, modify, reinforce, and apply mathematical ideas <p>Connecting</p> <ul style="list-style-type: none"> Visualize and describe mathematical concepts Connect mathematical concepts to each other and make mathematical connections to the real world <p>Representing</p> <ul style="list-style-type: none"> Develop mathematical understanding through concrete, pictorial, and symbolic representations Use technology appropriately to explore mathematics, solve problems, record, communicate and represent thinking | |
| Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> |
| <ul style="list-style-type: none"> number concepts to 10 partitioning numbers to 10 <p>• repeating patterns with two or three elements</p> <p>• concrete relationship through change (ex. Show me how do I go from 4 to 6?)</p> <p>• equality as a balance and inequality as an imbalance</p> <p>• direct comparative measurement, based on one attribute</p> <p>• 3D objects, based on one attribute</p> <p>• positional language, such as beside, on top of, under, and in front of</p> <p>• the likelihood of familiar, real-life events</p> | <ul style="list-style-type: none"> number concepts to 20 addition and subtraction to 20 <p>• repeating patterns with multiple elements and attributes</p> <p>• recognize and describe coins</p> <p>• verbal relationship through change (ex. Tell me how do I go from 10 to 15?)</p> <p>• the meaning of equality and inequality</p> <p>• daily events in a timeline</p> <p>• indirect comparative measurement, based on one attribute</p> <p>• measurement with non-standard units</p> <p>• comparing time using non-standard duration</p> <p>• 3D objects and 2D shapes, based on one attribute</p> <p>• relative positions, using positional language such as up, down, in, and out</p> <p>• concrete graphs using one-to-one correspondence</p> <p>• the likelihood of less-familiar, real-life events</p> | <ul style="list-style-type: none"> number concepts to 100 addition and subtraction to 100 <p>• repeating and increasing patterns</p> <p>• values of coins</p> <p>• symbolic relationship through change using numbers and/or symbols</p> <p>• symbolic representation of equality and inequality</p> <p>• measure by using single and multiple copies of a non-standard unit</p> <p>• comparing time using non-standard duration</p> <p>• 3D objects and 2D shapes, based on multiple attributes</p> <p>• relative positions, including distance</p> <p>• pictorial representation of concrete graphs</p> <p>• the likelihood of contrived events</p> | <ul style="list-style-type: none"> number concepts to 1000 addition and subtraction to 1000 one-step addition and subtraction equations with an unknown number <p>• fractions</p> <p>• multiplication and division of single-digit numbers</p> <p>• increasing and decreasing patterns</p> <p>• monetary denominations, using coins and bills</p> <p>• measurement using standard units</p> <p>• standard units of time</p> <p>• 2D shapes and 3D objects, based on faces, edges, and vertices</p> <p>• preservation of shape (ex. Rotating will not change properties)</p> <p>• one-to-one correspondence using pictographs, charts, and tables</p> <p>• likelihood of two or more outcomes</p> | <ul style="list-style-type: none"> number concepts to 10 000 addition and subtraction to 10 000 decimals to hundredths, including addition and subtraction one-step equations with an unknown number ordering and comparing fractions multiplication and division of two- or three-digit numbers by one-digit numbers <p>• increasing and decreasing patterns, including use of charts, graphs, and tables</p> <p>• pattern rules with words and numbers</p> <p>• monetary calculations, purchasing and change</p> <p>• perimeter of simple regular and irregular shapes</p> <p>• how to tell time with analogue and digital clocks, using 12- and 24-hour clocks</p> <p>• polygons</p> <p>• line symmetry</p> <p>• one-to-one correspondence and many-to-one correspondence, using bar graphs, pictographs, charts, and tables</p> <p>• simple probability experiments</p> |

BC Draft Curriculum - Mathematics - Progressive Matrix
PROGRESSION IS HIGHLIGHTED IN THE FOLLOWING DOCUMENT VIA **BOLDED TEXT**.

| Grade 5 BIG IDEAS | Grade 6 BIG IDEAS | Grade 7 BIG IDEAS | Grade 8 BIG IDEAS | Grade 9 BIG IDEAS |
|--|--|---|--|---|
| Numbers represent values that can be used in calculations and expressed in many ways. | Numbers tell us how many or how much of both very large and very small quantities. Understanding whole-number operations helps us make sense of and use operations with decimal number. | Parts of wholes can be represented in many ways that have important connections. Understanding whole-number operations helps us make sense of and do these operations with fractions and integers. | Proportional reasoning helps us make sense of how quantities are related in real-life contexts. Understanding whole-number multiplication and division helps us make sense of and do these operations with fractions and integers. | |
| Attributes of objects and shapes can be used to predict spatial relationships. | Shapes can be described and classified by many properties, including their angles. Transformations describe meaningful spatial relationships. | Circles of all sizes contain and share important relationships. Linear relations can be represented in many ways that have important connections. | We can make sense of 3D objects through different perspectives. Linear relations can be represented in many ways that have important connections. | Linear relations can be represented in many ways that have important connections. |
| | | Different measures and uses of data help us compare and interpret information | Data collection and representation help us communicate with others. | |
| Patterns can be expressed with algebraic variables and symbols to represent problems and solutions. | Relationships in patterns can be represented in many ways, and these representations have important connections. | | | |
| Time is arranged into predictable units that allow for planning and problem solving. | | | | |
| Chance and uncertainty are used to inform decisions in everyday life | | | | |
| | | | | Through inquiry, we explore mathematics flexibly, creatively, and reflectively. People can solve problems and express their mathematical thinking in a range of forms. |
| | | | | Topics in mathematics are interconnected and interrelated. |
| Curricular Competencies <i>Students will be able to problem solve.</i> Analyzing a problem | Curricular Competencies <i>Students will be able to problem solve.</i> Analyzing a problem | Curricular Competencies <i>Students will be able to problem solve.</i> Analyzing a problem | Curricular Competencies <i>Students will be able to problem solve.</i> Analyzing a problem | Curricular Competencies <i>Students will be able to problem solve.</i> Analyzing a problem • Engage in multiple strategies to solve problems in both abstract and real-life situations • Estimate and determine the reasonableness of values • Develop and apply mental math strategies to determine decimal and fraction calculations, deepen understanding, and reinforce whole number computational fluency Reasoning and proof • Inductively and deductively reason and use logic to explore, make connections, predict, analyze, generalize, and make conclusions Communicating • Communicate concretely, pictorially, symbolically, and using spoken and written language to express, describe, explain, represent, clarify, modify, reinforce, apply, defend, and extend mathematical ideas Connecting • Visualize and describe mathematical concepts • Connect mathematical concepts to each other and make mathematical connections to the real world • Explore, demonstrate, apply, and connect mathematical concepts incorporated in other disciplines Representing • Describe, create, and interpret relationships through concrete, pictorial, and symbolic representations • Use technology appropriately to explore, illustrate, examine relationships, test conjectures, solve problems, record, communicate and represent thinking |
| Reasoning and proof | Reasoning and proof | Reasoning and proof | Reasoning and proof | |
| Communicating | Communicating | Communicating | Communicating | |
| Connecting | Connecting | Connecting | Connecting | |
| Representing | Representing | Representing | Representing | |
| Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> | Concepts and Content <i>Students will know and understand the following concepts and content.</i> • numerical and spatial reasoning, logic, and patterns to solve puzzles and games • exponents • personal budgets • factors, prime factors, and numerical radicals • rational and irrational • multiplication and division of decimals, fractions, mixed numbers, and integers • two-variable linear relations, including graphs, rates of change, functions, and relations • operations with polynomials, of degree less than or equal to two • one- and two-step equations with rational coefficients and solutions • multi-step one-variable linear equations and inequalities • equations involving distribution • surface area and volume of composite solids • volume of prisms, pyramids, cones, and spheres • primary trigonometric ratios • Pythagorean theorem • scale diagrams of 2D shapes • data collection, display, and analysis, including population and sample data • probability in society |