# Half Course I

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| Unit A: Learning to Learn |
| **Demonstrate, through discussion and written work, the following behaviours:**   * **persistence** * **managing impulsivity** * **listening with empathy and understanding** * **flexibility in thinking** * **thinking about thinking** |
| Use specific strategies in different problem solving situations. (A-1) |
| Demonstrate a willingness to work independently as well as to work interdependently as a team member (A-2) |
| Use questioning/clarifying to improve creative thinking (A-3) |

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| **Unit B: Smart Math** |
| **Develop number sense by explaining mental strategies for calculating and estimating solutions to problems.** |
| Use a visual model to make reasonable estimates of percent and corresponding number values. (B-1) |
| Use reasoning to mentally calculate 50% of a variety of numbers, and explain the method. (B-2) |
| Use  and 0.50 along with 50% to perform mental calculations. (B-3) |
| Use reasoning to mentally calculate 100% when 50% is known and explain the strategies for calculation. (B-4) |
| Use reasoning to mentally calculate 25% (including  and 0.25) of a variety of numbers and explain the strategies for calculation. (B-5) |
| Use reasoning to mentally calculate 12  % (including and 0.125) of a variety of numbers and explain the method(s) used to solve the problems. (B-6) |
| **Use a concrete model to build and develop an understanding of addition and subtraction of integers** |
| Use a “charges model” to represent operations involving signed numbers. (B-7) |
| Model and explain addition involving integers and understand the need to apply the “zero principle” to model some situations. (B-8) |
| Model and explain subtraction involving integers and understand the need to apply the “zero principle” to model some situations. (B-9) |
| **Use concrete, pictorial and symbolic representations of algebraic expressions** |
| Recognize patterns and use them to develop oral expressions (B-10) |
| Model, sketch, and represent symbolically an algebraic expression. (B-11) |

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| Unit C: Investigations |
| **Develop and use mathematical strategies, concepts, and skills in the context of mathematical investigations.** |
| Conduct and analyze mathematical investigations (C-1) |
| Use forms to outline procedures used, difficulties encountered, and patterns discovered. (C-2) |

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| **Unit D: Activities for Skill Development** |
| **Complete activities intended to motivate and remediate concepts and skills in arithmetic and geometry** |
| Visualize, compare and explain fractions (D-1) |
| Round and estimate whole numbers and decimals (D-2) |
| Apply arithmetic operations on fractions (D-3) |
| Identify the operation(s) needed in problem solving (D-4) |
| Understand and apply concepts and vocabulary related to triangles (D-5) |
| Read and interpret various line graphs (D-6) |

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| Unit E: Money Management |
| **Develop and use mathematical strategies, concepts, and/or skills to solve problems in real-life contexts.** |
| Make decisions concerning purchasing and justify those decisions using a five-step purchasing process (E-1) |
| Prepare a written report outlining an item to be purchased, researching the best buy, investigating options, and summarizing the final decisions. (E-2) |

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| Unit F: Scheme-A-Team |
| **Develop and use mathematical strategies, concepts, and/or skills to solve problems in real-life contexts.** |
| Make decisions concerning the operation of a team and justify those decisions both practically and mathematically (F-1) |
| Prepare and present a written report outlining and justifying facility selection, league expenses, tournament expenses, and total expenses for a team project (F-2) |

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###### Half Course II

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| Unit A: Learning to Learn |
| **Demonstrate, through discussion and written work, the following behaviours:**   * **persistence** * **managing impulsivity** * **listening with empathy and understanding** * **flexibility in thinking** * **thinking about thinking** * **checking for accuracy and precision** * **drawing on past knowledge** * **questioning and problem posing** * **precision of language and thought** |
| Use specific strategies in different problem solving situations. (A-1) |
| Demonstrate a willingness to work independently as well as to work interdependently as a team member (A-2) |
| Use questioning/clarifying to improve creative thinking (A-3) |
| Recognize a preference for learning through the theory of multiple intelligences. (A-4) |

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| **Unit B: Smart Math** |
| **Use a variety of methods including concrete models, to develop an understanding of variables, expressions, and equations** |
| Use a concrete model to demonstrate the concept of balance in algebra (B-1) |
| Substitute and determine the values for first-degree algebraic expressions and equations given the value for the variable. (B-2) |
| Simplify algebraic expressions through the collection of like terms.  (B-3) |
| Solve one- and two-step first-degree linear equations containing one variable. (B-4) |
| Model and solve one- and two-step first-degree linear equations using Algebra Tiles (B-5) |
| **Use a concrete model to build and develop an understanding of multiplication and division of integers** |
| Model and explain multiplication involving integers (B-6) |
| Use inverse operations to explain division of integers (B-7) |
| **Develop number sense by explaining mental strategies for calculating and estimating solutions to problems** |
| Review Half Course 1 benchmarks (100%, 50%, 25%, 12%) (B-8) |
| Use reasoning to mentally calculate 10% of a variety of numbers and explain the method(s) used to solve the problems (B-9) |
| Use reasoning to mentally calculate 5% of a variety of numbers and explain the strategies for the calculations (B-10) |
| Use established percent benchmarks and reasoning to mentally calculate answers to number problems, and explain the methods used. (B-11) |

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| Unit C: Investigations in Algebra |
| Develop and use mathematical strategies, concepts, and skills in the context of mathematical investigations in algebra |
| Conduct and analyze mathematical investigations to determine the pattern and express the relationship algebraically (C-1) |
| Write a formal report about an investigation (C-2) |

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| Unit D: Activities for Skill Development |
| Complete activities that are intended to motivate as well as remediate introductory algebra |
| Translate between written and algebraic expressions or between algebraic and written expressions (D-1) |
| Substitute and determine the values for first degree algebraic expressions, given the value of one or more variables (D-2) |
| Simplify algebraic expressions through the collection of like terms. (D-3) |
| Multiply monomials by monomials (D-4) |
| Multiply polynomials by a constant using the distributive property (D-5) |
| Solve and verify solutions to one- and two-step linear equations containing one variable (D-6) |
| Identify the number of different terms in any given polynomial (D-7) |

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| Unit E: Nutrition and Fitness |
| **Develop and use mathematical strategies, concepts, and/or skills to solve problems in real-life contexts** |
| Make decisions concerning nutrition and activity and justify those decisions both practically and mathematically (E-1) |
| Prepare a written report outlining and justifying a fitness program including nutrition, realistic activity or exercise, and whether a person would gain or lose weight using this fitness program (E-2) |

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| Unit F: Probability and Sampling |
| **Develop and use mathematical strategies, concepts and/or skills to solve problems concerning the measurement of perimeter and area, and the use of percent, ratio, scale and proportions in real-life contexts.** |
| Make decisions concerning room renovations and justify those decisions both practically and mathematically (F-1) |
| Prepare and present a written report outlining and justifying design considerations including measurements, scale drawings, and the cost of materials for a room renovation project (F-2) |