### Half Course I

#### 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)

#### 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 $\frac{1}{2}$ 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 $\frac{1}{4}$ and 0.25) of a variety of numbers and explain the strategies for calculation. (B-5)
- Use reasoning to mentally calculate $12 \frac{1}{2}$% (including $\frac{1}{8}$ 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 (B-7)
- Use a “change 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 (B-10)
- Represent patterns and use them to develop oral expressions (B-10)
- Model, sketch, and represent symbolically an algebraic expression, given the value of one or more variables. (B-11)

#### 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)

#### 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 operations 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)

#### 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 decision. (E-2)

#### 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)

### Half Course II

#### 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)
- Recognize a preference for learning through the theory of multiple intelligences. (A-4)

#### 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. (B-6)
- 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%, $12 \frac{1}{2}$ %) (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)

#### 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)

#### 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 and equations 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)

#### 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 realistic activity or exercise, and whether a person would gain or lose weight using this fitness program. (E-2)

#### 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)