### Grade 10 Essential Mathematics (20S)                2009

#### Half Course 1

**Analysis of Games and Numbers**

**General Outcome:** Develop critical thinking skills.

**Specific Outcomes**

- It is expected that students will:
  - 10E1.A.1. Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies. [C, CN, PS, R]

**Processes:**

- C – Communication
- CN – Connections
- ME – Mental Mathematics and Estimation
- PS – Problem Solving
- R – Reasoning
- T – Technology
- V – Visualization

**Personal Finance**

**General Outcome:** Develop an understanding of employment earnings.

**Specific Outcomes**

- It is expected that students will:
  - 10E1.P.1. Demonstrate an understanding of calculations for gross pay and net pay earned through income sources including:
    - wages
    - salary
    - contracts
    - commissions
    - piecework
    [C, CN, R, T]
  - 10E1.P.2. Solve problems that require the manipulation and application of formulas related to income. [C, CN, ME, PS, R]

**Measurement**

**General Outcome:** Develop spatial sense through direct and indirect measurement.

**Specific Outcomes**

- It is expected that students will:
  - 10E1.M.1. Demonstrate an understanding of the Système International (SI) by describing the relationships of the units for length, area, volume, capacity, and mass. [C, CN, ME, V]
  - 10E1.M.2. Demonstrate an understanding of the imperial system by describing the relationships of the units for length, area, volume, capacity, and mass comparing American and British imperial units for capacity applying strategies to convert between imperial units and SI units. [C, CN, ME, V]
  - 10E1.M.3. Solve and verify problems that involve SI and imperial linear measurements, including decimal and fractional measurements. [CN, ME, PS, V]
  - 10E1.M.4. Solve problems that require the manipulation and application of formulas related to converting measurement. [C, CN, ME, PS, R]

**2D Geometry**

**General Outcome:** Develop an understanding of spatial relationships applied to area.

**Specific Outcomes**

- It is expected that students will:
  - 10E1.G.1. Solve problems that involve SI and imperial area measurements of regular, composite, and irregular 2-D shapes, including decimal and fractional measurements. [ME, PS, R, V]
  - 10E1.G.2. Solve problems that require the manipulation and application of formulas related to:
    - perimeter
    - area
    [C, CN, ME, PS, R]

#### Half Course 2

**Analysis of Games and Numbers**

**General Outcome:** Develop critical thinking skills.

**Specific Outcomes**

- It is expected that students will:
  - 10E2.A.1. Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies. [C, CN, PS, R]

**Trigonometry**

**General Outcome:** Develop spatial sense relating to triangles.

**Specific Outcomes**

- It is expected that students will:
  - 10E2.TG.1. Solve problems involving right triangles using the Pythagorean theorem. [C, CN, PS, V]
  - 10E2.TG.2. Demonstrate an understanding of primary trigonometric ratios (sine, cosine, tangent) by:
    - applying similarity to right triangles
    - generalizing patterns from similar right triangles
    - solving problems
    [CN, PS, R, T, V]
  - 10E2.TG.3. Solve problems that require the manipulation and application of formulas related to:
    - the Pythagorean theorem
    - primary trigonometric ratios
    [C, CN, ME, PS, R]

**Consumer Decisions**

**General Outcome:** Develop skills to make informed consumer decisions.

**Specific Outcomes**

- It is expected that students will:
  - 10E2.C.1. Solve problems that involve unit pricing and currency exchange, using proportional reasoning. [CN, ME, PS, R]

**Transformations**

**General Outcome:** Develop spatial sense.

**Specific Outcomes**

- It is expected that students will:
  - 10E2.TF.1. Demonstrate an understanding of transformations on a 2-D shape, including:
    - translations
    - rotations
    - reflections
    - dilations
    [C, CN, R, T, V]

**Angle Construction**

**General Outcome:** Develop spatial sense.

**Specific Outcomes**

- It is expected that students will:
  - 10E2.AC.1. Demonstrate an understanding of angles, including acute, right, obtuse, straight and reflex, by:
    - drawing
    - replicating and constructing
    - bisecting
    - solving problems
    [C, ME, PS, T, V]
  - 10E2.AC.2. Solve problems that involve parallel, perpendicular, and transversal lines, and pairs of angles formed between them. [C, CN, PS, V]