### K to 9 Organizers

<table>
<thead>
<tr>
<th>Number</th>
<th>Patterns and Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate an understanding of perfect squares and square roots concretely, pictorially, and symbolically (limited to whole numbers) (E, CN, R, V).</td>
<td>Demonstrate an understanding of linear equations, using linear equations of the form $y = mx + b$ and $y = kx$.</td>
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<td>Demonstrate an understanding of patterns in tables resulting from a problem-solving context using linear equations of the form $y = mx + b$ and $y = kx$.</td>
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<tr>
<td>Solve problems that involve rates, ratios, and proportional reasoning (CN, PS, R, V).</td>
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<tr>
<td>Demonstrate an understanding of slope and rate of change.</td>
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</table>

### Grade 8

#### Number

- Demonstrate an understanding of patterns with integral bases, including base $2$ and integral number exponents by:
  - multiplying integral numbers using patterns in tables (limited to $2^n$, $n$ is a non-negative integer) (E, CN, PS, V).
  - finding powers that have an exponent of zero (E, CN, PS).

#### Patterns and Relations

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#### Variables and Equations

- Solve problems that require the manipulation and application of formulas related to:
  - surface area
  - volume
  - area
  - perimeter
  - volume
  - capacity

#### Algebra

- Solve problems that require the manipulation and application of formulas related to:
  - salary
  - wages
  - piecework
  - loans
  - leases to buy

### Grade 9

#### Number

- Solve problems that involve rates, ratios, and proportional reasoning (CN, PS, R, V).
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#### Algebra

- Solve problems that require the manipulation and application of formulas related to:
  - salary
  - wages
  - piecework
  - loans
  - leases to buy

### 10 to 12 Organizers

#### Apprenticeship and Workplace 10

- Solve problems that require the manipulation and application of formulas related to:
  - surface area
  - volume
  - area
  - perimeter
  - volume
  - capacity

#### Apprenticeship and Workplace 11

- Solve problems that require the manipulation and application of formulas related to:
  - salary
  - wages
  - piecework
  - loans
  - leases to buy

#### Apprenticeship and Workplace 12

- Solve problems that require the manipulation and application of formulas related to:
  - salary
  - wages
  - piecework
  - loans
  - leases to buy

### Mathematical Processes (Integrated)

- The following mathematical processes have been integrated within the prescribed learning outcomes and achievement indicators for all grades:
  - communication (C, CN, PS, ME, V)
  - critical thinking (CN, R, T)
  - creative thinking (CN, R, T)
  - problem solving (PS, T, V)
  - reasoning (R, T)
  - technology (T)
  - visualization (V)
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<td><strong>Geometry</strong></td>
<td><strong>Statistics and Probability</strong></td>
<td><strong>Data Analysis</strong></td>
<td><strong>F1</strong></td>
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The following mathematical processes have been integrated within the prescribed learning outcomes and achievement indicators for all grades: communication (C), connections (CN), mental mathematics and estimation (ME), problem solving (PS), measuring (M), technology (T), and visualization (V).