

## BIG IDEAS

Algebra allows us to **generalize** relationships through abstract thinking.

The meanings of, and **connections** between, operations extend to powers, radicals, and polynomials.

Quadratic **relationships** are prevalent in the world around us.

Trigonometry involves using **proportional reasoning** to solve **indirect measurement** problems.

## Learning Standards

| Curricular Competencies   | Content  |
|---|--|
| <p><i>Students are expected to do the following:</i></p> <p><b>Reasoning and modelling</b></p> <ul style="list-style-type: none"> <li>• Develop <b>thinking strategies</b> to solve puzzles and play games</li> <li>• Explore, <b>analyze</b>, and apply mathematical ideas using <b>reason</b>, <b>technology</b>, and <b>other tools</b></li> <li>• <b>Estimate reasonably</b> and demonstrate <b>fluent, flexible, and strategic thinking</b> about number</li> <li>• <b>Model</b> with mathematics in <b>situational contexts</b></li> <li>• <b>Think creatively</b> and with <b>curiosity and wonder</b> when exploring problems</li> </ul> <p><b>Understanding and solving</b></p> <ul style="list-style-type: none"> <li>• Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, <b>inquiry</b>, and problem solving</li> <li>• <b>Visualize</b> to explore and illustrate mathematical concepts and relationships</li> <li>• Apply <b>flexible and strategic approaches</b> to <b>solve problems</b></li> <li>• Solve problems with <b>persistence and a positive disposition</b></li> <li>• Engage in problem-solving experiences <b>connected</b> with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures</li> </ul> | <p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> <li>• <b>real number</b> system</li> <li>• <b>powers</b> with rational exponents</li> <li>• <b>radical</b> operations and equations</li> <li>• polynomial <b>factoring</b></li> <li>• <b>rational</b> expressions and equations</li> <li>• <b>quadratic</b> functions and equations</li> <li>• linear and quadratic <b>inequalities</b></li> <li>• <b>trigonometry</b>: non-right triangles and angles in standard position</li> <li>• <b>financial literacy</b>: compound interest, investments, loans</li> </ul> |

Learning Standards (continued)

| Curricular Competencies  | Content |
|--|---------|
| <p><b>Communicating and representing</b></p> <ul style="list-style-type: none"> <li>• <b>Explain and justify</b> mathematical ideas and <b>decisions</b> in <b>many ways</b></li> <li>• <b>Represent</b> mathematical ideas in concrete, pictorial, and symbolic forms</li> <li>• Use mathematical vocabulary and language to contribute to <b>discussions</b> in the classroom</li> <li>• Take risks when offering ideas in classroom <b>discourse</b></li> </ul> <p><b>Connecting and reflecting</b></p> <ul style="list-style-type: none"> <li>• <b>Reflect</b> on mathematical thinking</li> <li>• <b>Connect mathematical concepts</b> with each other, with other areas, and with personal interests</li> <li>• Use <b>mistakes</b> as <b>opportunities to advance learning</b></li> <li>• <b>Incorporate</b> First Peoples worldviews, perspectives, <b>knowledge</b>, and <b>practices</b> to make connections with mathematical concepts</li> </ul> |         |