BIG IDEAS

Mathematics has **developed** over many centuries and continues to evolve.	Mathematics is a global **language** used to understand the world.	**Societal needs** across cultures have influenced the development of mathematics.	**Tools and technology** are catalysts for mathematical development.	Notable **mathematicians** in history nurtured a sense of play and curiosity that led to the development of many areas in mathematics.

Learning Standards

Curricular Competencies	Content
Students are expected to do the following: **Reasoning and modelling** • Develop **thinking strategies** to solve historical puzzles and play games • Explore, **analyze**, and apply historical mathematical ideas using **reason**, **technology**, and **other tools** • **Think creatively** and with **curiosity and wonder** when exploring problems **Understanding and solving** • Critique multiple strategies used to solve mathematical problems throughout history • Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, **inquiry,** and problem solving • **Visualize** to explore and illustrate mathematical concepts and relationships • Apply **flexible and strategic approaches** to **solve problems** • Solve problems with **persistence and a positive disposition** • Engage in problem-solving experiences **connected** with place, story and cultural practices, including local First Peoples	*Students are expected to know the following:* • **number and number systems:** – written and oral numbers – zero – rational and irrational numbers – pi – prime numbers • **patterns and algebra:** – early algebraic thinking – variables – early uses of algebra – Cartesian plane – notation – Fibonacci sequence • **geometry:** – of lines, angles, triangles – Euclid's five postulates – geometric constructions – developments through time

Learning Standards (continued)

Curricular Competencies	Content
Communicating and representing • **Explain and justify** mathematical ideas and **decisions** in **many ways** • Use historical symbolic representations to explore mathematics • Use mathematical vocabulary and language to contribute to **discussions** in the classroom • Take risks when offering ideas in classroom **discourse** **Connecting and reflecting** • **Reflect** on mathematical thinking • **Connect mathematical concepts** with each other, with other areas, and with personal interests • Reflect on the consequences of mathematics culturally, socially, and politically • Use **mistakes** as **opportunities to advance learning** • **Incorporate** First Peoples worldviews, perspectives, **knowledge**, and **practices** to make connections with mathematical concepts	• **probability and statistics:** – Pascal's triangle – games involving probability – **early beginnings** of statistics and probability • **tools and technology:** development over time, from clay tablets to modern-day calculators and computers • **cryptography:** – use of ciphers, encryption, and decryption throughout history – modern uses of cryptography in war and digital applications