**Area of Learning: MATHEMATICS — History of Mathematics Grade 11**

**BIG IDEAS**

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| 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**

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| **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
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**Learning Standards (continued)**

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| **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
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