

## BIG IDEAS

Mathematics has developed over many centuries and continues to evolve.

The development of number and number systems occurred in many areas of the world and has evolved over time.

The algebra of today is an accumulation of work throughout the ages by mathematicians from many cultures.

Tools and technology have moved mathematics forward.

Historical mathematicians nurtured a sense of play and curiosity that led to the development of many areas in mathematics.

## Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p><b>Reasoning and analyzing</b></p> <ul style="list-style-type: none"> <li>Explore, make connections, predict, analyze, generalize, and make conclusions</li> <li>Use historically appropriate tools and technology to explore problems from the past</li> </ul> <p><b>Understanding and solving</b></p> <ul style="list-style-type: none"> <li>Explore multiple strategies used to solve problems throughout history</li> <li>Develop, construct, and apply mathematical understanding through play, inquiry, and problem solving</li> <li>Engage in problem-solving experiences that are connected to place, story, and cultural practices relevant to the historical context</li> </ul> <p><b>Communicating and representing</b></p> <ul style="list-style-type: none"> <li>Communicate in a variety of ways, including written and oral language from a variety of cultures</li> <li>Understanding historical mathematical understanding through concrete, pictorial, and symbolic representations of the past</li> </ul>	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> <li><b>number and number systems:</b> including written and oral numbers, zero, rational numbers, pi, irrational numbers, prime numbers</li> <li><b>patterns and algebra:</b> early algebraic thinking, variables, early uses of algebra, Cartesian plane, notation, Fibonacci sequence</li> <li><b>geometry:</b> lines, angles, triangles, Euclid's five postulates, geometric constructions, developments through time</li> <li><b>probability and statistics:</b> Pascal's Triangle, games involving probability, <b>early beginnings</b> of statistics and probability</li> <li><b>tools and technology:</b> development over time, from clay tablets to modern-day calculators and computers</li> <li><b>cryptography:</b> use of cyphers, encryption, and decryption throughout history; modern uses of cryptography in war; digital applications</li> </ul>

Learning Standards (continued)

Curricular Competencies	Content
<p><b>Connecting and reflecting</b></p> <ul style="list-style-type: none"> <li>• Access the significance of key figures throughout history and their contributions to the advancement of mathematics</li> <li>• Explore, apply, and connect concepts to each other</li> <li>• Explore the effects of mathematics on culture socially and politically</li> <li>• Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts</li> </ul>	

DRAFT