Fall

HOW THE FALL CURRICULUM CHARTS ARE ORGANIZED

The Learning Outcomes that follow from **Mathematics** must be taught during the FALL season. Learning outcomes must be grounded in Nehiyaw Ways of Knowing and Land Based Learning.

The content from Land Based Learning, Nehiyaw Ways of Knowing, Social Studies and Science should be applied to the **Mathematics** outcomes. Throughout the year, teachers will collaborate and generate more/other ideas that will value add to the suggested connections.

Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold; Others are *need to know* or *worth being familiar with*	Season	Nehiyaw Ways of Knowing and Land Based Learning FALL ELO rows are highlighted
	NUMBER		
Develop number sense	**1. Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by [C, CN, PS, R]** *** representing repeated multiplication, using powers** • **using patterns to show that a power with an exponent of zero is equal to one** • **solving problems involving powers.**		
	2. Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents: C, CN, PS, R, T] [ICT: P2–3.4] • **$(a^s)(a^n) = a^{s+n}$** • **$a^s / a^n = a^{s-n}$, $s > n$** • **$(a^s)^n = a^{sn}$** • **$(ab)^n = a^n + b^n$** • **$(a/b)^n = a^n/b^n$, $b \neq 0$**		
	3. Demonstrate an understanding of rational numbers by: [C, CN, PS, R, T, V] [ICT: P2–3.4] • comparing and ordering rational numbers • solving problems that involve arithmetic operations on rational numbers.		

Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold; Others are *need to know* or *worth being familiar with*	Season	Nehiyaw Ways of Knowing and Land Based Learning FALL ELO rows are highlighted
Develop number sense (continued)	**4. Explain and apply the order of operations, including exponents, with and without technology. [PS, T]**		
	5. Determine the square root of positive rational numbers that are perfect squares. [C, CN, PS, R, T] [ICT: P2–3.4]		
	6. Determine an approximate square root of positive rational numbers that are non-perfect squares. [C, CN, PS, R, T] [ICT: P2–3.4]		

The Essential Learning Outcomes (ELOs) identified in these charts by the KTCEA working group are based on **their local context**. An educational authority from a different region of Alberta may identify different ELOs, based on their context. All outcomes in Alberta Education's Program of Studies must be taught, but what is deemed essential will look different, based on context.

Winter

HOW THE WINTER CURRICULUM CHARTS ARE ORGANIZED

The Learning Outcomes that follow from **Mathematics** must be taught during the WINTER season. Learning outcomes must be grounded in Nehiyaw Ways of Knowing and Land Based Learning.

The content from Land Based Learning, Nehiyaw Ways of Knowing, Social Studies and Science should be applied to the **Mathematics** outcomes. Throughout the year, teachers will collaborate and generate more/other ideas that will value add to the suggested connections.

Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold; Others are *need to know* or *worth being familiar with*	Season	Nehiyaw Ways of Knowing and Land Based Learning WINTER ELO rows are highlighted
	PATTERNS AND RELATIONS		
General Outcome (Patterns): Use patterns to describe the world and to solve problems.	**1. Graph and analyze two-variable linear relations. [C, ME, PS, R, T,, V] [ICT: P2–3.3]**		
General Outcome (Variables and Equations): Represent algebraic expressions in multiple ways.	**2. Model and solve problems concretely, pictorially and symbolically, using linear equations of the form:** • **$ax = b$** • **$x/a=b = , a \neq 0$** • **$ax + b = c$** • **$x/a + b = c, a \neq 0$** • **$a(x + b) = c$** **where a, b and c are integers. [C, CN, PS, V]**		

Spring

HOW THE SPRING CURRICULUM CHARTS ARE ORGANIZED

The Learning Outcomes that follow from **Mathematics** must be taught during the SPRING season. Learning outcomes must be grounded in Nehiyaw Ways of Knowing and Land Based Learning.

The content from Land Based Learning, Nehiyaw Ways of Knowing, Social Studies and Science should be applied to the **Mathematics** outcomes. Throughout the year, teachers will collaborate and generate more/other ideas that will value add to the suggested connections.

Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold; Others are *need to know* or *worth being familiar with*	Season	Nehiyaw Ways of Knowing and Land Based Learning SPRING ELO rows are highlighted
	SHAPE AND SPACE		
General Outcome (Measurement): Use direct and indirect measurement to solve problems.	**1. Solve problems and justify the solution strategy, using the following circle properties: [C, CN, PS, R, T, V] [ICT: C6–3.1, C6–3.4]** • **the perpendicular from the centre of a circle to a chord bisects the chord** • **the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc** • **the inscribed angles subtended by the same arc are congruent** • **a tangent to a circle is perpendicular to the radius at the point of tangency.**		
General Outcome (3-D Objects and 2-D Shapes): Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.	**2. Determine the surface area of composite 3-D objects to solve problems. [C, CN, PS, R, V]**		
	3. Demonstrate an understanding of similarity of polygons. [C, CN, PS, R, V]		
General Outcome (Transformations): Describe and analyze position and motion of objects and shapes.	4. Draw and interpret scale diagrams of 2-D shapes. [CN, R, T, V]		
	5. Demonstrate an understanding of line and rotation symmetry. [C, CN, PS, V]		

The Essential Learning Outcomes (ELOs) identified in these charts by the KTCEA working group are based on **their local context**. An educational authority from a different region of Alberta may identify different ELOs, based on their context. All outcomes in Alberta Education's Program of Studies must be taught, but what is deemed essential will look different, based on context.

Big Idea, Major Concepts, GLOs	Specific Learning Outcomes ELOs are bold; Others are *need to know* or *worth being familiar with*	Season	Nehiyaw Ways of Knowing and Land Based Learning SPRING ELO rows are highlighted
	STATISTICS AND PROBABILITY		
General Outcome (Data Analysis): Collect, display and analyze data to solve problems.	**1. Describe the effect of:** • **bias** • **use of language** • **ethics** • **cost** • **time and timing** • **privacy** • **cultural sensitivity on the collection of data.** **[C, CN, R, T] [ICT: F4–3.2, F4–3.3]**		
	2. Select and defend the choice of using either a population or a sample of a population to answer a question. [C, CN, PS, R]		
	3. Develop and implement a project plan for the collection, display and analysis of data by: **• formulating a question for investigation** **• choosing a data collection method that includes social considerations** **• selecting a population or a sample** **• collecting the data** **• displaying the collected data in an appropriate manner** **• drawing conclusions to answer the question.** **[C, PS, R, T, V] [ICT: C1–3.5, C4–3.1, C6–3.1, C6–3.2, C7–3.1, C7–3.2, P1–3.4, P2–3.1]**		

The Essential Learning Outcomes (ELOs) identified in these charts by the KTCEA working group are based on **their local context**. An educational authority from a different region of Alberta may identify different ELOs, based on their context. All outcomes in Alberta Education's Program of Studies must be taught, but what is deemed essential will look different, based on context.