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| **MATH 1** **Planning - KDU** | | | | | |
| **CORE COMPETENCIES**  **COMMUNICATION** | | **CORE COMPETENCIES**  **THINKING (CRITICAL/CREATIVE)** | | **CORE COMPETENCIES**  **(PERSONAL/SOCIAL)** | |
| **CURRICULAR COMPETENCIES** | **BIG IDEA (Understand…)** | | **What do we want students to DO? (Activities, lessons…)** | | **Content (& Elaborations)**  **(Know)** |
| **Reasoning and analyzing**   * Use reasoning and logic to explore and make connections * Estimate reasonably *(estimating by comparing to something familiar (e.g., more than 5, taller than me); First Peoples people used specific estimating and measuring techniques in daily life (e.g., estimating time using environmental references and natural daily/seasonal cycles, estimating temperatures based on weather systems).)* * Develop mental math strategies *(working toward developing fluent and flexible thinking about number)* and abilities to make sense of quantities * Use technology *(calculators, virtual manipulatives, concept-based apps)* to explore math * Model *(acting it out, using concrete materials, drawing pictures)* math in contextualized experiences   **Understanding and solving**   * Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving * Visualize to explore mathematical concepts * Develop & use multiple strategies *(visual, oral, role-play, experimental, written, symbolic)* to engage in problem solving * Engage in problem-solving experiences that are connected *(in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration; Patterns are important in First Peoples technology, architecture, and artwork.; Have students pose and solve problems or ask questions connected to place, stories, and cultural practices.)* to place, story, and cultural practices relevant to the local First Peoples communities, the local community and other cultures   **Communicating and representing**   * Communicate *(concretely, pictorially, symbolically, and by using spoken or written language to express, describe, explain, and apply mathematical ideas; using technology such as screencasting apps, digital photos)* math thinking in many ways * Use mathematical vocabulary and language to contribute to mathematical discussions * Explain and justify *(using mathematical arguments; “Prove it!”)* mathematical ideas and decisions * Represent mathematical ideas in concrete, pictorial, and symbolic forms *(Use local materials gathered outside for concrete and pictorial representations.)*   **Connecting and reflecting**   * Reflect *(sharing the mathematical thinking of self and others, including evaluating strategies and solutions, extending, and posing new problems and questions)* on mathematical thinking * Connect mathematical concepts to each other and to other areas and personal interests *(to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration)* * Incorporate *(how ovoid has different look to represent different animal parts; invite local First Peoples Elders and knowledge keepers to share their knowledge.)* First Peoples worldviews and perspectives to make connections *(Bishop’s cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm\_files/abishop.htm); aboriginaleducation.ca; Teaching Mathematics in a First Nations Context,; FNESC fnesc.ca/k-7/)* to mathematical concepts | Numbers *(Number: Number represents and describes quantity.)* to 20 represent quantities that can be decomposed into 10s and 1s.  Addition and subtraction with numbers to 10 can be modelled concretely, pictorially, and symbolically to develop computational fluency  Repeating elements in patterns *(We use patterns to represent identified regularities and to make generalizations.)* can be identified. | | *Questions to support inquiry with students:*   * How does understanding 5 or 10 help us think about other numbers? * What is the relationship between 10s and 1s? * Why is it useful to use 10 frames to represent quantities? * What stories live in numbers? * How do numbers help us communicate and think about place? * How do numbers help us communicate and think about ourselves? * What is the relationship between addition and subtraction? * How does knowing that 4 and 6 make 10 help you understand other ways to make 10? * How many different ways can you solve…? (e.g., 8 + 5) * How can patterns be used to make predictions? * What is the relationship between increasing patterns and addition? * What do you notice about this pattern? What is the part that repeats? * What number patterns live in a hundred chart? | | * number concepts to 20 *(counting: counting on and counting back; skip-counting by 2 and 5; sequencing numbers to 20; comparing and ordering numbers to 20; Numbers to 20 can be arranged and recognized; subitizing; base 10; 10 and some more.*   *Books published by Native Northwest: Learn to Count, by various artists; Counting Wild Bears by Gryn White; We All Count by Jason Adair; We All Count by Julie Flett (nativenorthwest.com) using counting collections made of local materials; counting in different languages; different First Peoples counting systems (e.g., Tsimshian), Tlingit Math Book (yukon-ed-show-me-your-math.wikispaces.com/file/detail/Tlingit Math Book.pdf))* * ways to make 10 *(decomposing 10 into parts; Numbers to 10 can be arranged and recognized; benchmarks of 10 and 20;*  *Traditional First Peoples counting methods involved using fingers to count to 5 and for groups of 5.; traditional songs/singing and stories)* * addition and subtraction to 20 *(decomposing 20 into parts; mental math strategies: counting on; making 10; doubles; addition and subtraction are related; whole-class number talks;*  *nature scavenger hunt in Kaska Counting Book (yukon-ed-show-me-your-math.wikispaces.com/file/detail/Kaska Counting Book.pdf))* (understanding of operation and process) * repeating patterns *(identifying sorting rules; repeating patterns with multiple elements/attributes; translating patterns from one representation to another (e.g., an orange-blue pattern could be translated to a circle-square pattern); letter coding of pattern; predicting an element in repeating patterns using a variety of strategies; patterns using visuals (ten-frames, hundred charts); investigating numerical patterns (e.g., skip-counting by 2s or 5s on a hundred chart; beading using 3–5 colours))* with multiple elements and attributes * change in quantity to 20 *(verbally describing a change in quantity (e.g., I can build 7 and make it 10 by adding 3)* concretely and verbally * meaning of equality and inequality *(demonstrating and explaining the meaning of equality and inequality; recording equations symbolically using = and ≠)* * financial literacy *(identifying values of coins (nickels, dimes, quarters, loonies, and toonies ); counting multiples of the same denomination (nickels, dimes, loonies, and toonies); Money is a medium of exchange.; role-playing financial transactions (e.g., using coins and whole numbers), integrating the concept of wants and needs;*  *trade games, with understanding that objects have variable value or worth (shells, beads, furs, tools))* – values of coins and monetary exchanges |
| **Evidence of Experience (Show)** | | | | |
| **BIG IDEA (Understand…)** | | **What do we want students to DO?**  **(Activities, lessons…)** | | **Content (& Elaborations)**  **(Know)** |
| Objects and shapes have attributes *(Geometry and Measurement: We can describe, measure, and compare spatial relationships.)* that can be described, measured, and compared. | | *Questions to support inquiry with students:*   * How are these shapes alike and different? * What stories live in these shapes? * What 2D shapes can you find in nature? | | * direct measurement *(Non-uniform units are not consistent in size (e.g., children’s hands, pencils); uniform units are consistent in size e.g., interlocking cubes, standard paper clips).; understanding the importance of using a baseline for direct comparison in linear measurement; using multiple copies of a unit; iterating a single unit for measuring (e.g., to measure the length of a string with only one cube, a student iterates the cube over and over, keeping track of how many cubes long the string is); tiling an area;*  *rope knots at intervals; using body parts to measure;  Book: An Anishnaabe Look at Measurement by Rhonda Hopkins and Robin King-Stonefish (strongnations.com/store/item\_display.php?i=3494&f=) hand/foot tracing for mitten/moccasin making)* with non-standard units (non-uniform and uniform) * Comparison of 2D shapes and 3D objects *(sorting 3D objects and 2D shapes using one attribute, and explaining the sorting rule; comparing 2D shapes and 3D objects in the environment; describing relative positions, using positional language (e.g., up and down, in and out); replicating composite 2D shapes and 3D objects (e.g., putting two triangles together to make a square))* |
| **Evidence of Experience (Show)** | | | | |
| **BIG IDEA (Understand…)** | | **What do we want students to DO?**  **(Activities, lessons…)** | | **Content (& Elaborations)**  **(Know)** |
| Concrete graphs help us to compare and interpret data *(Data and Probability: Analyzing data and chance enables us to compare and interpret.)* and show one-to-one correspondence. | | *Questions to support inquiry with students:*   * What stories can data tell us? * When might we use words like never, sometimes, always, more likely, and less likely? * How does organizing concrete data help us understand the data? | | * concrete graphs *(creating, describing, and comparing concrete graphs)* using one-to-one correspondence * Likelihood of familiar life events *(using the language of probability (e.g., never, sometimes, always, more likely, less likely);*  *cycles (Elder or knowledge keeper to speak about ceremonies and life events))* using comparative language |
| **Evidence of Experience (Show)** | | | | |