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| **MATH 3**  **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)*
* 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
 | Fractions are a type of number that can represent quantities.Development of computational fluency in addition, subtraction, multiplication, and division of whole numbers requires flexible decomposing and composing.Regular increases and decreases in patterns can be identified and used to make generalizations. | *Questions to support inquiry with students:* * In how many ways can you represent the fraction \_\_\_\_?
* What is the relationship between parts and wholes when we think about fractions?
* How do these materials help you think about fractions?
* 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 multiplication?
* How can we decompose and compose numbers to help us add, subtract, multiply, and divide?
* How might we use mental math strategies to solve equations?
* How are these patterns alike and different (e.g., increasing and decreasing)?
* How are place value patterns repeated in large numbers?
* How do numbers help us describe patterns?
 | * number concepts to 1000 *(counting: skip-counting by any number from any starting point, increasing and decreasing (i.e., forward and backward); Skip-counting is related to multiplication. investigating place-value based counting patterns (e.g., counting by tens, hundreds; bridging over a century noticing the role of zero as a placeholder 698, 699, 700, 701; noticing the predictability of our number system); numbers to 1000 can be arranged and recognized: comparing and ordering numbers; estimating large quantities; place value: 100s, 10s, and 1s; understanding the relationship between digit places and their values, to 1000 (e.g., the digit 4 in 342 has the value of 40 or 4 tens); understanding the importance of 0 as a place holder (e.g., in the number 408, the zero indicates that there are 0 tens);*  *instructional resource: Math in a Cultural Context by Jerry Lipka)*
* Fraction concepts *(Fractions are numbers that represent an amount or quantity. Fractions can represent parts of a region, set, or linear model. Fraction parts are equal shares or equal-sized portions of a whole or unit. Teachers can provide opportunities to explore and create fractions with concrete materials.; recording pictorial representations of fraction models and connect to symbolic notation;*  *equal sharing, pole ratios as visual parts, medicine wheel, seasons)*
* addition and subtraction to 1000 *(using flexible computation strategies, involving taking apart (e.g., decomposing using friendly numbers and compensating) and combining numbers in a variety of ways; estimating sums and differences of all operations to 1000; using addition and subtraction in real-life contexts and problem-based situations; whole-class number talks)*
* addition and subtraction facts to 20(emerging computational fluency) *(adding and subtracting of numbers to 20; demonstrating fluency with math strategies for addition and subtraction (e.g., decomposing, making and bridging ten, related doubles, and commutative property); Addition and subtraction are related.; At the end of Grade 3, most students should be able to recall addition facts to 20.)*
* Multiplication and division concepts *(understanding concepts of multiplication (e.g., groups of, arrays, repeated addition); understanding concepts of division (e.g., sharing, grouping, repeated subtraction); Multiplication and division are related. Provide opportunities for concrete and pictorial representations of multiplication. Use games to develop opportunities for authentic practice of multiplication computations; looking for patterns in numbers, such as in a hundred chart, to further develop understanding of multiplication computation; Connect multiplication to skip-counting. Connect multiplication to division and repeated addition. Memorization of facts is not intended for this level.; fish drying on rack; sharing of food resources in First Peoples communities)*
* increasing and decreasing patterns *(creating patterns using concrete, pictorial, and numerical representations; representing increasing and decreasing patterns in multiple ways; generalizing what makes the pattern increase or decrease (e.g., doubling, adding 2))*
* pattern rules *(from a concrete pattern, describing the pattern rule using words and numbers;*  *predictability in song rhythm and patterns; Share examples of local First Peoples art with the class, and ask students to notice patterns in the artwork.)* using words and numbers based on concrete experiences
* one-step addition and subtraction equations *(start unknown (e.g., n + 15 = 20); change unknown ( e.g., 12 + n = 20); result unknown (e.g., 6 + 13 = n); investigate even and odd numbers)* with an unknown number
* financial literacy *(counting mixed combinations of coins and bills up to $100: totalling up a set of coins and bills; using different combinations of coins and bills to make the same amount; understanding that payments can be made in flexible ways (e.g., cash, cheques, credit, electronic transactions, goods and services); understanding that there are different ways of earning money to reach a financial goal (e.g., recycling, holding bake sales, selling items, walking a neighbour’s dog);*  *Using pictures of First Peoples trade items (e.g., dentalium shells, dried fish, or tools when available) with the values indicated on the back, have students play a trading game.)* - fluency with coins and bills to 100 dollars, and earning and payment
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| **Evidence of Experience (Show)** |
| **BIG IDEA (Understand…)** | **What do we want students to DO?****(Activities, lessons…)**  | **Content (& Elaborations)****(Know)** |
| Standard units are used to describe, measure, and compare attributes *(Geometry and Measurement: We can describe, measure, and compare spatial relationships.)*  of objects’ shapes. | *Questions to support inquiry with students:* * Where do 2D shapes live in 3D objects?
* How do standard units help us to compare and communicate measurements?
* How do the properties of shapes contribute to buildings and designs?
 | * Time *(understanding concepts of time (e.g., second, minute, hour, day, week, month, year); understanding the relationships between units of time; Telling time is not expected at this level.;*  *estimating time, using environmental references and natural daily/seasonal cycles, temperatures based on weather systems, traditional calendar)* concepts
* measurementusing standard units *(linear measurements (e.g., centimetre, metre, kilometre); linear measurement including developing concepts of circumference, perimeter and area; capacity measurements using standard units (e.g., millilitre, litre); mass measurements using standard units (e.g., gram, kilogram); estimation of measurements using standard referents (e.g., If this cup holds 100 millilitres, about how much does this jug hold?))* (linear, mass, capacity)
* Construction of 3D shapes *(identifying 3D shapes according to the 2D shapes of the faces and the number of edges and vertices (e.g., construction of nets, skeletons); describing the attributes of 3D shapes; (e.g., faces, edges, vertices); identifying 3D shapes by their mathematical terms (e.g., sphere, cube, prism, cone, cylinder); comparing 3D shapes (e.g., How are rectangular prisms and cubes the same or different?); understanding the preservation of shape (e.g., the orientation of a shape will not change its properties);*  *jingle dress bells, bentwood box, birch bark baskets, pithouses)*
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| **Evidence of Experience (Show)** |
| **BIG IDEA (Understand…)** | **What do we want students to DO?****(Activities, lessons…)**  | **Content (& Elaborations)****(Know)** |
|  | The likelihood of possible outcomes *(Data and Probability: Analyzing data and chance enables us to compare and interpret)* can be examined, compared, and interpreted. | *Questions to support inquiry with students:* * How is the probability of an event determined and described?
* What events in our lives are left to chance?
* What are the possible outcomes of these events?
 | * One-to-one correspondence *(collecting data, creating a graph, and describing, comparing, and discussing the results; choosing a suitable representation)* with bar graphs, pictographs, charts, and tables
* Likelihood of simulated events *(using comparative language (e.g., certain, uncertain; more, less, or equally likely); developing an understanding of chance (e.g., tossing a coin creates a 50-50 chance of landing a head or tail; drawing from a bag, using spinners, rolling dice all simulate probability events).* Story: The Snowsnake Game (yukon-ed-show-me-your-math.wikispaces.com/file/view/The%20Snowsnake%20Game.pdf/203828506/The%20Snowsnake%20Game.pdf) using comparative language
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|  | **Evidence of Experience (Show)** |