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| **MATH 7**  **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 logic and patterns (including coding) to solve puzzles and play games * Use reasoning and logic (making connections, using inductive and deductive reasoning, predicting, generalizing, drawing conclusions through experiences) to explore, analyze, and apply mathematical ideas * Estimate reasonably (estimating using referents, approximation, and rounding strategies (e.g., the distance to the stop sign is approximately 1 km, the width of my finger is about 1 cm) * Demonstrate and apply (extending whole-number strategies to decimals; working toward developing fluent and flexible thinking about number) mental math strategies * Use tools or technology to explore and create patterns and relationships, and test conjectures * Model (acting it out, using concrete materials (e.g., manipulatives), drawing pictures or diagrams, building, programming) mathematics in contextualized experiences   **Understanding and solving**   * Apply multiple strategies (includes familiar, personal, and from other cultures) to solve problems in both abstract and contextualized situations * Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving * Visualize to explore mathematical concepts * 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**   * Use mathematical vocabulary and language to contribute to mathematical discussions * Explain and justify *(* *using mathematical arguments)* mathematical ideas and decisions * Communicate *(* *concretely, pictorially, symbolically, and by using spoken or written language to express, describe, explain, justify, and apply mathematical ideas; may use technology such as screencasting apps, digital photos)* mathematical thinking in many ways * Represent mathematical ideas in concrete, pictorial, and symbolic forms   **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) * Use mathematical arguments to support personal choices *(including anticipating consequences)* * 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 | Decimals, fractions, and percents are used to represent and describe parts and wholes of numbers.  Computational fluency and flexibility with numbers extend to operations with integers and decimals.  Linear relations can be represented in many connected ways to identify regularities and make generalizations. | | *Questions to support inquiry with students:*   * In how many ways can you represent the number \_\_\_? * What is the relationship between decimals, fractions, and percents? * How can you prove equivalence? * How are parts and wholes best represented in particular contexts? * When we are working with integers, what is the relationship between addition and subtraction? * When we are working with integers, what is the relationship between multiplication and division? * When we are working with integers, what is the relationship between addition and multiplication? * When we are working with integers, what is the relationship between subtraction and division? * What is a linear relationship? * In how many ways can linear relationships be represented? * How do linear relationships differ? * What factors can change a linear relationship? | | * Multiplication and division facts to 100 *(When multiplying 214 by 5, we can multiply by 10, then divide by 2 to get 1070)* [extending computational fluency] * operations with integers *(addition, subtraction, multiplication, division, and order of operations; concretely, pictorially, symbolically; order of operations includes the use of brackets, excludes exponents; using two-sided counters; 9–(–4) = 13 because –4 is 13 away from +9; extending whole-number strategies to decimals)*  [addition, subtraction, multiplication, division, and order of operations] * operations with decimals *(includes the use of brackets, but excludes exponents )* [addition, subtraction, multiplication, division, and order of operations] * relationship *(conversions, equivalency, and terminating versus repeating decimals, place value, and benchmarks; comparing and ordering decimals and fractions using the number line; ½ = 0.5 = 50% = 50:100; shoreline cleanup)*  between decimals, fractions, ratios and percents * discrete linear relations *(four quadrants, limited to integral coordinates; 3n + 2; values increase by 3 starting from y-intercept of 2; deriving relation from the graph or table of values; Small Number stories: Small Number and the Old Canoe, Small Number Counts to 100 (mathcatcher.irmacs.sfu.ca/stories))*, using expressions, tables, and graphs * two-step equations *(* *solving and verifying 3x + 4 = 16; modelling the preservation of equality (e.g., using balance, pictorial representation, algebra tiles); spirit canoe trip pre-planning and calculations; Small Number stories: Small Number and the Big Tree (mathcatcher.irmacs.sfu.ca/stories))* with whole number coefficients, constants, and solutions * financial literacy *(* *financial percentage calculations; sales tax, tips, discount, sale price)* – financial percentage |
| **Evidence of Experience (Show)** | | | | |
| **BIG IDEA (Understand…)** | | **What do we want students to DO?**  **(Activities, lessons…)** | | **Content (& Elaborations)**  **(Know)** |
| The constant ratio between the circumference and diameter of circles can be used to describe, measure, and compare spatial relationships. | | *Questions to support inquiry with students:*   * What is unique about the properties of circles? * What is the relationship between diameter and circumference? * What are the similarities and differences between the area and circumference of circles? | | * Circumference *(constructing circles given radius, diameter, area, or circumference; finding relationships between radius, diameter, circumference, and area to develop C = π x d formula; applying A = π x r x r formula to find the area given radius or diameter; drummaking, dreamcatcher making, stories of SpiderWoman (Dene, Cree, Hopi, Tsimshian), basket making, quill box making (Note: Local protocols should be considered when choosing an activity.)*  and area of circles * Volume *(* *volume = area of base x height bentwood boxes, wiigwaasabak and mide-wiigwaas (birch bark scrolls); Exploring Math through Haida Legends: Culturally Responsive Mathematics (haidanation.ca/Pages/language/haida\_legends/media/Lessons/RavenLes4-9.pdf))* of rectangular prisms and cylinders * Cartesian coordinates and graphing *(origin, four quadrants, integral coordinates, connections to linear relations, and transformations;*  *overlaying coordinate plane on medicine wheel, beading on dreamcatcher, overlaying coordinate plane on traditional maps)* * combinations of transformations *(* *four quadrants, integral coordinates; translation(s), rotation(s), and/or reflection(s) on a single 2D shape; combination of successive transformations of 2D shapes; tessellations; First Peoples art, jewelry making, birchbark biting)* |
| **Evidence of Experience (Show)** | | | | |
| **BIG IDEA (Understand…)** | | **What do we want students to DO?**  **(Activities, lessons…)** | | **Content (& Elaborations)**  **(Know)** |
| Data from circle graphs can be used to illustrate proportion and to compare and interpret. | | *Questions to support inquiry with students:*   * How is a circle graph similar to and different from other types of visual representations of data? * When would you choose to use a circle graph to represent data? * How are circle graphs related to ratios, percents, decimals, and whole numbers? * How would circle graphs be informative or misleading? | | * Circle graphs *(* *constructing, labelling, and interpreting circle graphs; translating percentages displayed in a circle graph into quantities and vice versa; visual representations of tidepools or traditional meals on plates)* * experimental probability *(experimental probability, multiple trials (e.g., toss two coins, roll two dice, spin a spinner twice, or a combination thereof); dice games (web.uvic.ca/~tpelton/fn-math/fn-dicegames.html))* with two independent events |
| **Evidence of Experience (Show)** | | | | |