CAMPBELL RIVER
School District 72

NUMERACY ANCHOR CHART
Mathematics K-9

Proficiency Scale

Emerging	Developing	Proficient	Extending
Preparing, expressing readiness, curiosity	Building familiarity and fluency with support	Showing consistency, confidence, independence	Embracing challenges, making connections, creativity

First Peoples Principles of Learning

- Learning ultimately supports the well-being of the self, the family and the community.
- Learning involves recognizing the consequences of one's actions.
- Learning involves recognizing that some knowledge is sacred.
- Learning is holistic, reflective, experiential and relational.
- Learning involves generational roles and responsibilities.
- Learning recognizes the role of indigenous knowledge.
- Learning is embedded in memory, history, and story.
- Learning requires exploration of one's identity.
- Learning involves patience and time.

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Effective Mathematics teaching practices

- Establish mathematics goals to focus learning
- Implement tasks that promote reasoning and problem solving
- Use and connect mathematical representations
- Facilitate meaningful mathematical discourse
- Pose purposeful questions
- Build procedural fluency from conceptual understanding
- Support productive struggle in learning mathematics
- Elicit and use evidence of student thinking

NCTM NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

Curricular Competencies Math K-9

REASONING & ANALYZING

- Use logic and patterns to solve puzzles and play games
- Use reasoning and logic to explore, analyze, and apply mathematical ideas
- Estimate reasonably
- Demonstrate and apply mental math strategies
- Use tools or technology to explore and create patterns and relationships, and test conjectures
- Model mathematics in contextualized experiences

UNDERSTANDING & SOLVING

- Apply multiple strategies 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 to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

COMMUNICATING & REPRESENTING

- Use mathematical vocabulary and language to contribute to mathematical discussions
- Explain and justify mathematical ideas and decisions
- Communicate mathematical thinking in many ways
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

CONNECTING & REFLECTING

- Reflect on mathematical thinking
- Connect mathematical concepts to each other and to other areas and personal interests
- Use mathematical arguments to support personal choices
- Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts

Sounds like...	Looks like...
What is the problem we are trying to solve? When and why do you estimate? What strategies did you use to estimate? Can you predict an answer that is possible, likely, low, or high? How did you check your progress or verify your process? What is another way to organize your ideas? How can you show the same information in a different way?	• Concrete and pictorial modelling • Think/Pair/Share/Group work • Placemats • Gallery walks • Number talks • Games/Puzzles • Concept webs • Venn diagrams • Sorting/matching/predicting • 3-ActTasks • Estimation mysteries • "Where's the Math?" • Picture prompts • Picture-book provocations • Video/Podcast/Peer teaching • Debate • Journaling • Knew/New Reflection • KWL chart • Notice & Wonder • Self assessment • Exit ticket • Mild/Medium/Spicy Problems • "Note to my future self" • "Messy Math" activities
What strategies did you use to solve the problem?* Can you see a pattern? Does the pattern help you solve the problem? What method are you going to use? Can a peer understand your work? How do you show your attempts and/or revisions? What story does this math tell? What does this mean?	
What do you notice, think or wonder while solving the problem? How can you plan your work to make it easier to understand? How can you model or visualize the math concept? What words will help you explain it to your peers? Is there a better / clearer way to organize your work?	
Have we found all the possibilities? Does your solution make sense? How is this problem like something else you solved before? What mistake(s) did you learn from? What would you do differently next time? How did you revise your thinking? I used to think _____ , now I know ____.	

Tools & Technology for Math Instruction

Big Ideas	Outdoor / Place-Based (Unplugged)	Traditional Tools	Digital Tools & Software
Number Sense Counting/Cardinality Subitizing Estimating Patterning Sorting/grouping Unitizing	Rocks, sticks, bugs, plants, animals Counting collections Kitchen measurement tools hands/feet/etc. bins/boxes/bags/bowls Outdoor sports (keeping score) fishing net/trowel/bucket/string	Chalk/crayons/pencils/markers Cuisenaire Rods Legos/Blocks Beads/Unifix cubes Pattern Blocks/Tangrams Rekenrek / Ten-frames / Abacus Dice/Dominoes/card games (ex. UNO) Bingo Game / board games Drumming/singing/dancing (body counting)	Virtual Manipulatives Tang Math Games Brainingcamp Ozobots/etc. Estimation180 Prodigy Ozobot/Robot Mouse/Cubetto
Ordinality Cyclicity/Modularity Arranging Organizing Visualizing Partition Equality Comparing	egg cartons/muffin tins/ etc. Compass/Thermometer/Weather station Seasonal data (changing light/temp/plants/etc.) Life cycles/ seasons cards/turtle calendar Net/sieve/filter unplugged hour of code activities colour wheel/paint	Money (coins and bills) 100-grid / multiplication table Rulers/Protractors Scales calendar/grid/array/table number line (single & double)/cartesian plane Fraction models Food Fractions (pizza/pie/cake/etc.)	Tarsia Yohaku/Shikaku Kenken/Sudoku 5 function calculator Lego mindstorms Scratch/Dash/Sphero/Cue Music composition software (ex. Incredibox)
Measuring (1D/2D/3D) Converting Scale Proportion Equality/inequality Calculating/Evaluating Spatial reasoning	Scale a recipe (up or down) Tide Charts/Moon calendar Playground equipment Tree rings / Increment Borer Rain gauge Test plots/garden beds Measure with hands/feet/paces/etc. Ramps/pullies/gears/etc.	Formline Art/Carving/Drum design Clocks/Stopwatch/Hourglass/Sundial Rulers/Protractors/Measuring tape Nets/Solids/Tiling/tessellations Weights & Scales Spirit/Water level Thermometer Ratio tables/Trig tables	digital garden design/room design (ex. IKEA) GPS (coordinates)/well data/seismic data scientific calculator Digital microscope/etc. digital sensors (pH/light/sound/pressure) Time-lapse / Slow-motion video Tinkercad/Blender Solvemoji / Tarsia
Generalizing/Predicting Encoding/coding Modelling Eliminating/Simplifying Solving/Isolating Substituting	Beading/Weaving/knitting/crochet Plan, prepare and share a meal Dichotomous keys Blueprints/maps/topographical charts Nautical charts	Algebra tiles Balance models (equations) Charts and graphs (by hand) Spreadsheets Store/Market/toy exchange/ swap and shop	Desmos activities Graspable Math/Virtual Mobile Models Dragonbox Algebra 12+ Digital survey tools Stats Canada/Our World in Data Digital mapping, graphing, and chart tools Online shopping/banking/budgeting tools