

Mathematical Foundations	Structures/Routines	Print Resources	Online Resources
High Yield/Instructional routines	<ul style="list-style-type: none"> <li>• Number talks</li> <li>• Which One Doesn't Belong</li> <li>• Esti-Mysteries</li> <li>• SPLAT</li> <li>• Daily math investigations</li> <li>• Counting Collections</li> <li>• Choral counting</li> <li>• Clothesline math</li> <li>• 3 Act Tasks</li> </ul>	<ul style="list-style-type: none"> <li>• <b>High-Yield Routines: K-8</b> (NCTM Publication)</li> <li>• <b>Number Sense Routines</b> (K-3) by Jessica F. Shumway</li> <li>• <b>Number Sense Routines</b> (Grades 3-5) by Jessica F. Shumway</li> <li>• <b>Making Number Talks Matter</b> (Grades 4-10) Cathy Humphreys &amp; Ruth Parker</li> <li>• <b>Number Talks</b> Sherry Parish &amp; Ann Dominick</li> <li>• <b>Good Questions</b> Carole Fullerton</li> <li>• <b>MathUP</b> Marian Small</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Home (sembl.app)</a></li> <li>• <a href="#">Math For Love</a></li> <li>• <a href="#">Number Talk Images - Accueil   Home (weebly.com)</a></li> <li>• <a href="#">Steve Wyborne's Blog: I'm on a Learning Mission. - Sharing Thoughts About Education</a></li> <li>• <a href="http://www.youcubed.org">www.youcubed.org</a></li> <li>• <a href="#">Clothesline Math – The Master Number Sense Maker</a></li> <li>• <a href="https://gfletchy.com/3-act-lessons/">https://gfletchy.com/3-act-lessons/</a></li> </ul>
Fluency activities/math games	<ul style="list-style-type: none"> <li>• Understanding is developed first, practice for fluency comes next</li> <li>• Math games to build fluency of previously taught mathematical concepts</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mastering the Facts Addition</b> Carole Fullerton</li> <li>• <b>Mastering the Facts Subtraction</b> Carole Fullerton</li> <li>• <b>Mastering the Facts Multiplication</b> Carole Fullerton</li> <li>• <b>Multiplicative Thinking From Skip Counting to Algebra</b> Carole Fullerton</li> <li>• <b>Fair Share: Teaching Division in Grades 4-7</b> Carole Fullerton</li> <li>• <b>Mastering the Basic Math Facts in Addition and Subtraction</b> Susan O'connell, John SanGiovanni</li> <li>• <b>Mastering the Basic Math Facts in Multiplication and Division</b> Susan O'connell, John SanGiovanni</li> <li>• <b>MathUP</b> Marian Small</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Math Games – Coast Metro Resources</a></li> <li>• <a href="https://www.numberhive.app/math-resources/number-hive-printouts/">https://www.numberhive.app/math-resources/number-hive-printouts/</a></li> <li>• <a href="http://boxcarsandoneeyedjacks.com">Product Finder - Box Cars &amp; One-Eyed Jacks (boxcarsandoneeyedjacks.com)</a></li> </ul>
Problem Solving activities	<p>Good problems will:</p> <ul style="list-style-type: none"> <li>• Will have more than one solution</li> <li>• Require the use of strategies such as pictures, tables, connecting to previous problems</li> <li>• Require time for students to solve</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Open Questions for Rich Math Lessons</b> Marian Small</li> <li>• <b>Good Questions</b> Carole Fullerton</li> <li>• <b>Building Thinking Classrooms in Mathematics</b> Peter Liljedahl</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">CEMC - Web Resources - Problem of the Week - University of Waterloo (uwaterloo.ca)</a></li> <li>• <a href="#">Problem Solving (maths.org)</a></li> <li>• <a href="#">Peter Liljedahl » Numeracy Tasks</a></li> <li>• <a href="#">YUMMYMATH</a></li> <li>• <a href="#">Recommended - British Columbia Association of Mathematics Teachers (bcamt.ca)</a></li> <li>• <a href="https://docs.google.com/spreadsheets/d/11U5TqWgHXZOSGTcto0DCpxHOabxS5PxQnTcNBLtI20w/edit#gid=40632956">https://docs.google.com/spreadsheets/d/11U5TqWgHXZOSGTcto0DCpxHOabxS5PxQnTcNBLtI20w/edit#gid=40632956</a></li> </ul>
Concrete Materials (Manipulatives)	<ul style="list-style-type: none"> <li>• Frequently used during the initial teaching of a new concept</li> <li>• Visible and readily available to provide continued support</li> </ul>	<ul style="list-style-type: none"> <li>• See back of page</li> </ul>	
Children's literature featuring Mathematical concepts	<ul style="list-style-type: none"> <li>• Can be used to set up problem solving questions</li> <li>• Allows anchoring for new teaching and review</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Math by the Book</b> (K-5) available at DLC</li> <li>• <b>Math Place Read Alouds</b> (1-3) Scholastic</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">40 Children's Books That Foster a Love of Math - DREME (stanford.edu)</a></li> <li>• <a href="#">storywork book resource 04 jun 18 (wordpress.com)</a></li> </ul>
Math Workshop	<ul style="list-style-type: none"> <li>• Teacher working with small group</li> <li>• Workstations are differentiated, engaging activities that foster mathematical thinking (Newton, 2016)</li> </ul>		

Building Thinking Classrooms	<ul style="list-style-type: none"> <li>• Students working in visibly random groupings</li> <li>• Standing rather than sitting</li> <li>• Working on vertical non-permanent surfaces</li> <li>• Teachers answering keep-thinking questions: Questions students ask so they can keep working, keep thinking, keep trying</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Building Thinking Classrooms in Mathematics</b> Peter Liljedahl</li> </ul>	
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Year Planning documents to consider:

<b>Coast Metro Math Project</b>	Year at a Glance, listed under each grade	<a href="#">Elementary Math Project – Coast Metro Resources</a>	
<b>Delta Learns</b>	Sample term by term year plans	Google "Delta Learns">Numeracy>planning your year, week and lesson>sample year plans	
<b>Mathematics and Science in SD #38</b>	Year overviews and more	<a href="#">Planning and Design 2022 - Mathematics and Science in SD#38 (Richmond) [sd38.bc.ca]</a>	

\*Recommended Concrete Materials K-5

Dice  
Two-Sided Counters  
Unifix Cubes  
Rekenreks

Ten Frames  
Pattern Blocks  
Cuisenaire Rods  
Base Ten Blocks

Playing Cards  
Loose Parts  
Geo Boards  
3D solids and shapes

Recommended Concrete Materials 6-8

Colour Tiles  
Dice  
Base Ten Blocks  
Class set of white board sleeves  
Linking cubes

Tangrams  
Algebra Tiles  
Pattern Blocks  
Geo Boards (10x10)  
Pentominoes

Two-Sided Counters  
Playing Cards  
Cuisenaire Rods  
Loose Parts

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