

K-12 Mathematics Learning Resources

compiled by Janice Novakowski, Teacher Consultant, Richmond School District
in collaboration with the Numeracy Learning Resources Committee and Math Mentor Teachers

When we consider the purchase of learning resources in mathematics, it is important to support teachers' pedagogical content knowledge aligned with our redesigned BC curriculum. The teacher professional resources listed below are intended to provide teachers with routines, tasks and problems/open questions to sustain their mathematics programs over the school year. Major Canadian publishers are also creating texts/resources to supplement existing text resources.

A list of core materials/manipulatives is also provided and these materials can be used across curricular content areas, supporting the development of important curricular competencies as well and are thus, also considered learning resources. Every classroom needs to have a core classroom "library" of materials that students have access to, to support their mathematical thinking.

There is a page of recommendations for each grade range of students (primary, intermediate, secondary) but there is much overlap between these. The teacher resources and materials have been recommended based on curricular content and competencies for those grade ranges.

Please contact me at jnovakowski@sd38.bc.ca if you have any questions. Current information about supporting the enactment of BC's K-12 mathematics curriculum in the Richmond School District can also be found on the portal at Learn38: <https://portal.sd38.bc.ca/learn38/mathematics/Pages/default.aspx>

or on the district blog:

<http://blogs.sd38.bc.ca/sd38mathandscience/>

Suggested learning resources for consideration follow...

PRIMARY

Teacher Resources

Becoming the Math Teacher You Wish You'd Had by Tracy Zager
Mathematical Mindsets by Jo Boaler
Number Sense Routines (K-3) by Jessica Shumway
How Children Learn Number Concepts: A Guide to the Critical Learning Phases by Kathy Richardson (available through didax.com)
Number Talks by Sherry Parrish
High Yield Routines by NCTM
Children's Mathematics: Cognitively Guided Instruction by Thomas Carpenter, Elizabeth Fennema et al
Choral Counting and Counting Collections: Transforming the PreK-5 Math Classroom by Megan Franke, Elham Kazemi et al
Math Workshop by Jennifer Lempp
Which One Doesn't Belong? by Christopher Danielson (picture book & teacher guide)
How Many? by Christopher Danielson (picture book & teacher guide)
Teaching Math with Meaning by Cathy Marks Krpan
Taking Shape: Activities to Develop Geometric and Spatial Thinking by Joan Moss, Cathy Bruce et al (available through Pearson Education)
Teaching Student-Centered Mathematics: Grades K-3 by John A. Van de Walle & LouAnn H. Lovin
Good Questions: Great Ways to Differentiate Mathematics Instruction by Marian Small
Open Questions for Rich Math Lessons, Grades K-3, Number Strand by Marian Small
Open Questions for Rich Math Lessons, Grades K-3, Measurement, Patterning and Algebra by Marian Small (available through Rubicon Publishing)
Math Exchanges: Guiding Young Mathematicians in Small-Group Meetings by Kassia Omohundro Wedekind
What to Look For: Understanding and Developing Student Thinking in Early Numeracy by Alex Lawson (available through Pearson Education)
Math Expressions: Developing Student Thinking And Problem Solving Through Communication by Dr. Cathy Marks Krpan (available through Pearson Education)
Mathematizing Children's Literature: Sparking Connections, Joy, and Wonder through Read-Alouds and Discussion by Allison Hintz and Antony T. Smith

Materials

Pattern Blocks	Two-Sided Counters	Place Value Cards
Cuisenaire Rods	Geoboards (5x5)	Playing Cards
Rekenreks	3D Solids/Shapes	Loose Parts
Magnetic Ten Frames	Number Balance	SumBlox
Unifix Cubes	Dice	Tiny Polka Dot game
Base Ten Blocks	Power of Ten Cards	Numicon Shapes

INTERMEDIATE

Teacher Resources

Becoming the Math Teacher You Wish You'd Had by Tracy Zager
Mathematical Mindsets by Jo Boaler
Number Sense Routines (grades 3-5) by Jessica Shumway
Number Talks by Sherry Parrish
Number Talks: Fractions, Decimals and Percentages by Sherry Parrish & Ann Dominick
Making Number Talks Matter by Cathy Humphreys and Ruth Parker
High Yield Routines by NCTM
Teaching Math with Meaning by Cathy Marks Krpan
Children's Mathematics: Cognitively Guided Instruction by Thomas Carpenter, Elizabeth Fennema et al
Choral Counting and Counting Collections: Transforming the PreK-5 Math Classroom by Megan Franke, Elham Kazemi et al
Math Workshop by Jennifer Lempp
Which One Doesn't Belong? by Christopher Danielson (picture book & teacher guide)
How Many? by Christopher Danielson (picture book & teacher guide)
Taking Shape: Activities to Develop Geometric and Spatial Thinking by Joan Moss et al
Building Proportional Reasoning Across Grades and Math Strands K-8 by Marian Small
Teaching Mathematical Thinking: Tasks and Questions to Strengthen Practices and Processes by Marian Small
Teaching Student-Centered Mathematics: Grades 3-5 by John A. Van de Walle & LouAnn H. Lovin
Good Questions: Great Ways to Differentiate Mathematics Instruction by Marian Small
Open Questions for Rich Math Lessons, Grades 4-6, Number Strand by Marian Small
Open Questions for Rich Math Lessons, Grades 4-6, Measurement, Patterning and Algebra by Marian Small (available through Rubicon Publishing)
Beyond Pizzas and Pies by Julie McNamara and Meghan M. Shaughnessy
Math Expressions: Developing Student Thinking And Problem Solving Through Communication by Dr. Cathy Marks Krpan (available through Pearson Education)
From Patterns to Algebra: Lessons for Exploring Linear Relationships by Dr. Ruth Beatty and Dr. Catherine D. Bruce (available through Nelson Education)

Materials

Pattern Blocks	3D Solids/Shapes and Nets
Cuisenaire Rods	Tangrams
Power Polygons	Number Balance
Base Ten Blocks	Dice
Two-Sided Counters	Power of Ten Cards
Algebra Tiles	Playing Cards
Colour Tiles (square)	Loose Parts
Geoboards (10x10 and circular)	Prime Climb game

SECONDARY

Teacher Resources

Becoming the Math Teacher You Wish You'd Had by Tracy Zager
Mathematical Mindsets by Jo Boaler
Number Talks: Fractions, Decimals and Percentages by Sherry Parrish & Ann Dominick
Making Number Talks Matter by Cathy Humphreys and Ruth Parker
High Yield Routines by NCTM
Teaching Math with Meaning by Cathy Marks Krpan
Building Proportional Reasoning Across Grades and Math Strands K-8 by Marian Small
Teaching Mathematical Thinking: Tasks and Questions to Strengthen Practices and Processes by Marian Small
Which One Doesn't Belong? by Christopher Danielson (picture book & teacher guide)
Teaching Student-Centered Mathematics: Grades 5-8 by John A. Van de Walle & LouAnn H. Lovin
More Good Questions: Great Ways to Differentiate Secondary Mathematics Instruction by Marian Small
Open Questions for Rich Math Lessons, Grades 7-9, Number Strand by Marian Small
Open Questions for Rich Math Lessons, Grades 7-9, Measurement, Patterning and Algebra by Marian Small (available through Rubicon Publishing)
Beyond Invert and Multiply by Julie McNamara
Math Expressions: Developing Student Thinking And Problem Solving Through Communication by Dr. Cathy Marks Krpan (available through Pearson Education)
From Patterns to Algebra: Lessons for Exploring Linear Relationships by Dr. Ruth Beatty and Dr. Catherine D. Bruce (available through Nelson Education)
Necessary Conditions by Geoff Krall

Materials

Pattern Blocks	3D Solids/Shapes (including fillable)
Cuisenaire Rods	and Nets
Power Polygons	Tangrams
Two-Sided Counters	Number & Fraction Balances
Algebra Tiles	Dice
Colour Tiles (squares)	Playing Cards
Geoboards (10x10, circular, isometric)	Loose Parts
	Prime Climb game