Learning Progressions in Math K-8

AM: 4-8 PM: K-3

Friday, January 23, 2026

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Join Jen Moroz as we briefly summarize the research supporting the development of learning progressions and relate it to instruction and assessment of mathematics. Participants will see how to construct a learning progression (the sequencing of discrete learning targets within a learning standard) and optimize its use as a skills index with formative and summative checkpoints for communication of student learning. Participants will have a ready-made bank of editable learning progressions and rubrics for immediate use.

BC Grade 4 Foundational Mathematics Learning curriculum@gov.bc.ca

Patterning
- Represent pattern rules for increasing and decreasing patterns in concrete, pictorial, and symbolic forms (e.g., adding links to a chain is +1, +1, +1 ...; successively cutting a bar in half is ÷2, ÷2, ÷2 ...)
- Use pattern rules to predict elements of, extend a pattern, and explain their reasoning
- Noticing relationships in patterns such as repetition helps students develop skills to observe, identify, and classify, and supports developing prediction skills.
- Explore more complex repeating, increasing, and decreasing patterns in the real world (e.g., patterns with flipped or rotated objects, patterns with a longer core, salmon counts by season, monthly average temperatures)
- Represent number patterns using a ratio table of values or a graph. Use mathematical language such as increasing or decreasing to describe observations

Grade 4 Name:	Instructional Strategies	Assessment
Rung 6: Represent Complex Patterns Using Multiple Forms		
✓ Represent complex repeating, increasing, and decreasing patterns using concrete, pictorial, and symbolic forms. Use ratio tables or graphs to illustrate number patterns and describe them using mathematical language.	Model pattern creation with real-world examples; use manipulatives, drawings, and symbolic notation; integrate technology for graphing patterns.	
Rung 5: Apply Pattern Rules to Predict and Extend Patterns		
✓ Use pattern rules to predict future elements, extend the sequence, and explain reasoning using mathematical language.	Provide partially completed patterns for completion; encourage verbal explanations of reasoning; use 'What comes next?' prediction activities.	
Rung 4: Explore Real-World Complex Patterns		
✓ Identify and analyze complex repeating, increasing, and decreasing patterns found in nature, culture, and daily life.	Take pattern walks in the environment; use photographs of cultural patterns; connect to seasonal or data-based patterns.	
Rung 3: Represent Increasing and Decreasing Patterns		
✓ Represent increasing and decreasing patterns using concrete, pictorial, and symbolic forms. Describe the change rule.	Use linking cubes, bead strings, or counters; draw pictorial sequences; record symbolic number sentences.	
Rung 2: Identify Pattern Rules		
✓ Identify the core and change rule of a simple repeating or growing pattern.	Provide hands-on sorting and sequencing activities; highlight repeating units or change amounts.	
Rung 1: Recognize Simple Patterns		
✓ Recognize and describe simple patterns in the environment.	Use songs, clapping rhythms, and simple art projects to highlight patterns.	

BC curriculum language from curriculum@gov.bc.ca
Compiled by Jennifer Moroz for the Assessment Syndicate 2025

Grade 4 Patterning– End of Year Performance Rubric https://curriculum.gov.bc.ca

Learning Target	Emerging (1) Student demonstrates initial understanding of the content and competencies relevant to the expected learning	Developing (2) Student demonstrates partial understanding of the content and competencies relevant to the expected learning	Proficient (3) Student demonstrates complete understanding of the content and competencies relevant to the expected learning	Extending (4) Student shows sophisticated understanding of the content and competencies relevant to the expected learning
Represent Complex Patterns Using Multiple Forms	Attempts to represent patterns but only in one form with limited accuracy.	Represents patterns in at least two forms with some accuracy; limited use of mathematical language.	Accurately represents patterns in multiple forms; uses appropriate mathematical language.	Fluently represents complex patterns in multiple forms including graphs; precisely uses mathematical language and explains connections between representations.
Apply Pattern Rules to Predict and Extend Patterns	Identifies the next element inconsistently; rule is unclear or missing.	Correctly applies pattern rule for simple sequences; explains reasoning partially.	Accurately applies pattern rule to extend sequences and explains reasoning clearly.	Consistently applies complex pattern rules, extends sequences, and justifies reasoning with multiple examples.
Explore Real-World Complex Patterns	Recognizes a pattern in real life with support.	Identifies and describes a simple real-world pattern with some accuracy.	Accurately identifies and describes complex real-world patterns using mathematical language.	Analyzes and compares multiple real-world patterns, identifying relationships and variations.
Represent Increasing and	Represents a simple pattern with frequent	Represents patterns with minor errors; identifies	Accurately represents increasing and decreasing	Creates original increasing and decreasing patterns;