

Extending Children’s Mathematics

Grade Levels

- * Grades 3-6
- * Special Education 3-6

Approved Areas of Professional Development

- * Assessment
- * Building a Collaborative Learning Community
- * Cognitive Research
- * Content (K-12)
- * Instructional Strategies
- * Principles of Learning/Developmental Stages
- * Standards, Frameworks, and Curriculum Alignment

Extending Children’s Mathematics (**ECM**) is a **three-year** professional development **opportunity** designed to enhance teachers’ ability to teach math for understanding by increasing their understanding of students’ mathematical thinking. The content focus is Operations and Algebraic Thinking, Number and Operations in Base Ten, Number and Operations – Fractions, The Number System, and Expressions and Equations as described in the Common Core State Standards (CCSS) for Grades 3-6. Through a focus on students’ thinking, teachers improve their ability to implement the Standards for Mathematical Practice as described in the CCSS.

Professional Development Schedule

Year 1	Content
Four-day summer institute	<ul style="list-style-type: none"> * Frameworks for how children solve multiplication, and division problems with whole numbers * Integrate number facts instruction with teaching for understanding * Frameworks for how children develop an understanding fractions as relational quantities * How to design problems for their students * How to pose problems to children in a manner that supports and develops children’s problem solving abilities
Two-day session in the fall semester	
Site-based, classroom embedded training is a part of the two-day session in the fall semester.	
One-day session in the spring semester	
Year 2	Content
Four-day summer institute	<ul style="list-style-type: none"> * Refine understanding of the frameworks from ECM Year 1 and increase ability to use these frameworks to inform math instruction * Framework for how children development an understanding of base ten * Framework for how children development an
Two sessions in the fall semester.	
Site-based, classroom embedded training is a part of the two-day session in the school year.	

Two-day session in the spring semester Site-based, classroom embedded training is a part of the two-day session in the fall semester.	understanding of equivalence * Integrating instruction in number and operations with instruction in algebraic thinking. * Assessing children's thinking by tailoring questions to gain specific information
Year 3	Content
Three-day summer institute	* Refine understanding of the frameworks learned in ECM years 1 and 2 * Integrate experience with children with understanding of the mathematical frameworks * Increase ability to integrate instruction in number and operations with instruction In algebraic thinking * Develop the ability to use mathematical notation to help children reflect on the algebraic properties of their solution strategies * Integrate instruction on computational fluency with teaching for understanding
Two-day session in the fall semester Site-based, classroom embedded training is a part of the two-day session in the fall semester.	
One-day session in the spring semester	

Research

Empson, S.B. and Levi, L. (2011). *Extending children's mathematics fractions and decimals: innovations in cognitively guided instruction*. Portsmouth, NH: Heinemann.

Contact Information

For additional information, contact the mathematics specialists at your local education service cooperative or university STEM center.