

Site Facilitator Guide: Teaching with Curriculum Focal Points in Grades 3 – 5

E-Workshop:	Teaching with Curriculum Focal Points
Grade Band:	3 – 5

Rationale/Suggestions for Use:

This set of E-Workshop and facilitator guide provides educators the opportunity to identify the important mathematical topics and progressions in grades 3 – 5 and focus the curriculum that is taught within their school system using NCTM’s Curriculum Focal Points as a guide. During the initial E-Workshop the learning progression of multiplication and division from 3rd grade to 5th grade will be explored through the use of several instructional approaches, including utilization of virtual manipulatives. Participants will be encouraged to try these activities in their classroom. In the follow-up E-Workshop, participants will reflect on the outcomes while exploring additional activities on the progression of fractions.

Materials:

- Registration for the [Teaching with Curriculum Focal Points in Grades 3 – 5 E-Workshop](#). With one site connection the E-Workshop can be projected for a large group from one computer. Audio can be accessed through the phone. A speaker phone is recommended for large groups.
- Copy of the Math Standards for Grades, 3, 4, and 5 in your school system.
- National Council of Teachers of Mathematics (NCTM). [Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics: A Quest for Coherence](#). Reston, VA: NCTM, 2006.
- Fennell, Francis. “[Curriculum Focal Points for Pre-K–Grade 8 Mathematics: A Quest for Coherence](#)”, *Teaching Children Mathematics* 13 (October 2006): 159.
- Computer access for all participants (optional)

Procedures/Discussion Questions:

1. Distribute this article for participants to read: Fennell, Francis. “Curriculum Focal Points for Pre-K-Grade 8 Mathematics: A Quest for Coherence”, *Teaching Children Mathematics* 13 (October 2006): 159
2. Pose the following question to all participants to facilitate a discussion about learning progressions and the concept of mathematical knowledge progressing and deepening over time:
 - What are some of the major learning progressions that occur in grades 3-5?

3. Divide participants into groups. Using the school systems curriculum for grades 3 – 5 and NCTM’s Curriculum Focal Points for Pre-K – Grade 8 Mathematics: A Quest for Coherence, participants will address the following questions within their group:
 - Do I think I currently have a focused mathematics curriculum in grades 3 – 5? Why or Why not?
 - What important ideas of learning progressions can be seen in our existing mathematics curriculum at each grade level? Do any important ideas appear in NCTM’s set of focal points that do not appear somewhere in our curriculum, and vice versa? If so, how do we address that discrepancy?
 - Does our sequence of important ideas make sense mathematically? Does it connect logically with the mathematics in earlier and later grade levels and build from grade to grade without unnecessary repetition? If not, how can we change this sequencing?
 - Can we tell from our own curriculum what topics will receive the most emphasis and how these topics are treated differently in grades 3, 4, and 5? How much time would you propose be spent on these areas of emphasis, and should that time be dispersed through the year or concentrated?
 - What content areas or topics in our existing curriculum can we think of as “connections” with the identified foundational ideas or focal points? Can we better connect these areas with the main areas of emphasis instead of teaching them as separate topics?
 - In general, what changes can be made to our curriculum, both overall and within the grades 3 – 5 grade band, to make it more focused?
 - What concerns do I have about the idea of a focused mathematics curriculum in grades 3 – 5?

4. Allow participants time to explore the following websites which will be referenced in the E-Workshop considering how these resources can be used as tools to support instruction.
 - All about Multiplication:
<http://illuminations.nctm.org/LessonDetail.aspx?ID=U109>
 - Hopping on the Number Line:
<http://illuminations.nctm.org/LessonDetail.aspx?ID=L316>
 - Number Line Applet:
http://nlvm.usu.edu/en/nav/frames_asid_180_g_1_t_1.html?open=activities
 - Rectangle Multiplication:
http://enlvm.usu.edu/ma/nav/activity.jsp?sid=nlvm&cid=2_1&lid=192

- Rectangle Division:
http://enlvm.usu.edu/ma/nav/activity.jsp?sid=nlvm&cid=2_1&lid=193
5. Attend the E-Workshop: Teaching with Curriculum Focal Points in Grades 3 -5
 6. Use one of the activities presented in the workshop with students. Consider the following reflection questions on teaching and learning:
 - What evidence shows students are learning with understanding?
 - What types of student responses demonstrate a lack of understanding?
 - What questions do you ask to deepen understanding?
 7. Participants should reflect on their experience trying the activities with students and should be ready to discuss the answer to the following questions during the follow-up workshop.
 - What worked and what did not work?
 - What modifications were made to the lesson address all of the needs of my students?
 - How did I assess conceptual understanding?
 - What additional activities can I share with the larger group that emphasizes depth of understanding as well as connections among mathematical ideas?
 8. Before the follow-up workshop participants should meet and discuss the following questions about assessment in small groups:
 - How do we measure the depth of understanding that a focused curriculum is meant to impart?
 - How do we measure students' sophistication of strategies used to solve problems or their fluency with numbers?
 - What is the role of classroom assessments in a focused curriculum?
 - What role do state assessments play in a focused curriculum? In what ways might state assessments be changed to better promote a focused curriculum?
 9. Allow participants time to explore the following websites which will be referenced in the Follow-up E-Workshop considering how these resources can be used as tools to support instruction.
 - Fraction Model I: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=11>
 - Fraction Model II: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=44>
 - Fraction Model III: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=45>

- Equivalent Fractions: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=80>
- Adding Fractions: http://nlvm.usu.edu/EN/NAV/frames_asid_106_g_2_t_1.html

10. Attend Follow-up E-Workshop: Teaching with Curriculum Focal Points in Grades 3 -5

Connections to Additional NCTM Publications:

- Beckmann, Sybilla and Karen C. Fuson. "[Focal Points – Grades 5 and 6](#)" *Teaching Children Mathematics* 14 (May 2008): 508-517
- Charles, Randall I., and Paula B. Duckett. "[Focal Points – Grades 3 and 4.](#)" *Teaching Children Mathematics* 14 (April 2008): 466-471
- Cramer, Kathleen, and Apryl Henry. "Using Manipulative Models to Build Number Sense for Addition of Fractions" In [Making sense of fractions, ratios, and proportions](#), 2002 Yearbook of the National Council of Teachers of Mathematics, edited by Bonnie Litwiller and George Bright, pp. 41 -48. Reston, VA: NCTM, 2002
- De Groot, Cornelis, and Timothy Whalen "[Longing for division.](#)" *Teaching Children Mathematics* 12 (April 2006): 410-418.
- National Council of Teachers of Mathematics (NCTM). [Focus in Grade 3: Teaching with Curriculum Focal Points](#). Reston, VA: NCTM,
- ———. [Focus in Grade 4: Teaching with Curriculum Focal Points](#). Reston, VA: NCTM, 2009.
- ———. [Focus in Grade 5: Teaching with Curriculum Focal Points](#). Reston, VA: NCTM, 2009.
- ———. [Navigating through Number and Operations in Grades 3-5](#). Reston, VA: NCTM, 2007.
- ———. *Principles and Standards for School Mathematics*. Reston, VA: NCTM, 2000
- Mirra, Amy. [Focus in Grades 3 – 5: Teaching with Curriculum Focal Points](#). Reston, VA: NCTM, 2008
- Smith, John P. "The Development of Students' Knowledge of Fractions and Ratios." In [Making sense of fractions, ratios, and proportions](#), 2002 Yearbook of the National Council of Teachers of Mathematics, edited by Bonnie Litwiller and George Bright, pp. 3 - 17. Reston, VA: NCTM, 2002