Participant Manual

Foundations of Math

Unit 1: Introduction

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READINGS (Required)

Articles to be read prior to the unit listed below:

Unit 1

These articles are to be read prior to Day 1 for Level 1 participants:

- Ball, D. L., & Cohen, D. K. (1996). Reform by the book: What is--or might be--the role of curriculum materials in teacher learning and instructional reform? *Educational Researcher, 25*(9), 6-8.
- Griffin, S. (2004). Teaching number sense. *Educational Leadership, 61*(5), 39-42.

Articles to be read prior to Day 1 for Level 2 participants:

- Ma, L. Arithmetic in American Mathematics Education: An Abandoned Arena?. Retrieved from: http://www.cbmsweb.org/archive/NationalSummit/Plenary_Speakers/ma.htm
- Dale, R., & Scherrer, J. (2015). Goldilocks Discourse — math scaffolding that's just right. *Phi Delta Kappan.* Retrieved from: http://www.kappancommoncore.org/goldilocks-discourse-mathscaffolding-thats-just-right/

Read by:_____

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UNIT 2

One chapter from Knowing and Teaching Elementary Mathematics text is to be read prior to Day 2 by Level 1 and 2 participants. Level 2 participants should read a different chapter than read when they attended Level 1.

***Text will be provided for check out on Day 1.**

- Ma, L. (1999). *Knowing and teaching elementary mathematics: Teachers' understanding of fundamental mathematics in China and the United States*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Ball, D. L. (1992). Magical Hopes. *American Educator,* Summer 14-18, 46-47.
- Optional text: The IES which is Institute of Education Sciences has practice guides that can be downloaded from: http://ies.ed.gov/.

Chapter Assigned:_____

Read By:_____

UNIT 4

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- Faulkner, V. & Cain, C. (2009). The components of number sense. An instructional model for teachers. *Teaching Exceptional Children, 41*(5), 24-30.

Read by:_____

UNIT 5

- Clements, D. H. (1999). Subitizing: What is it? Why teach it? *Teaching Children Mathematics*, March, 400-405. Retrieved from: http://gse.buffalo.edu/fas/clements/files/subitizing.pdf

Read by:_____

UNIT 6

- Faulkner, V., Walkowiak, T., Cain, C., & Lee, C (2016). Equality Matters: The critical implications of precisely defining equality. *Australian Primary Mathematics Classroom*, 21(4) 11-15.

Read by:_____

LEARNING TASKS

Level 1

***Descriptions and rubrics are provided in the appendix of the participant manual. All Learning tasks must be completed individually.**

- Structures: NC SCOS Situations (addition and subtraction or multiplication and division)
- Number Knowledge Test
- Painting Walls
- Pre-Post instructional videos (Pre-video must be completed prior to day 2)

  Topics for pre-post videos (choose 1 topic and use the same topic for both videos):

  Cardinality principle

  43-27

  3/4 * 1/2

  2/3 = x/9

  Write the equation in slope intercept form given the points (2,4) (5,8)

Learning Tasks Due By:_____

Level 2

Debrief Sessions:

- Level 2 instruction must be presented by a state-level instructor, regional coaches are considered state-level instructors. A Letter of Intent signed by district EC Director and direct supervisor

signed and sent to regional state math consultant prior to Day 1 of Level 2.

- Level 2 participants will have a 30 minute debrief at the end of each day of foundations instruction.

Learning Tasks

- 15-minute video presenting FoM course slides (see details in appendix).

Learning Tasks Due By:_____

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My Goals for this Course:

_____

_____

_____

_____

_____

_____

The Horse Problem

A farmer buys a horse for $60.

Later he sells it for $70.

He buys it back for $80.

Finally, he sells it for $90.

How much money did the farmer make or lose?

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Reform by the Book

BIG IDEA 1:

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Unit 1: Introduction

BIG IDEA 2:

References:

- Ball, D. L., & Cohen, D. K. (1996). Reform by the book: What is--or might be--the role of curriculum materials in teacher learning and instructional reform? *Educational Researcher, 25*(9), 6-8.
- Ball, D. L. (1992). Magical Hopes. *American Educator,* Summer 14-18, 46-47.
- Blasé, K. and Fixsen, D. (2013c) Retrieved from the internet http://nirn.fpg.unc.edu/learn-implementation/implementation-drivers/dss
- Griffin, S. (2004). Teaching number sense. *Educational Leadership, 61*(5), 39-42.
- Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement.* Routledge: New York, NY. Graphic retrieved from internet https://visible-learning.org/wp-content/uploads/2013/01/Visible-Learning-What-works-best-10-selected-effects.png

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- Joyce, B. & Showers, B. (1981). Transfer of Training: The contribution of coaching. *Journal of Education, 163*(2), 163-172.
- Joyce, B., and Showers, B. (2002). Student achievement through staff development (3rd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Knight, J. (2011). *Unmistakable Impact.* Corwin: Thousand Oaks, CA.
- Ma, L. Arithmetic in American Mathematics Education: An Abandoned Arena?. Retrieved from: http://www.cbmsweb.org/archive/NationalSummit/Plenary_Speakers/ma.htm
- National Council for Teachers of Mathematics. (2014). *Principles to Actions: Ensuring Mathematical Success for All.* NCTM: Reston, VA.