

Math Intervention in Action (k-2) (3-5)

Instructor: Dr. Nicki Newton

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Office Hours: Virtual office hours are by appointment. We can meet through virtual face to face conference or by phone. Email me for an appointment.

Required Essential Readings Text/Materials:

1. <https://ies.ed.gov/ncee/wwc/PracticeGuide/2>

Course Description: Math Intervention in Action is a course designed to discuss the research around math intervention. Throughout the course we will discuss the specifics of setting up, implementing and evaluating small group math intervention.

Course Goals/Student Learning Outcomes: The goal of this course is that teachers fully understand and can design and implement a math intervention program by the end of the course. Teachers should be able to describe what it is, how to do it, how to organize the classroom, how to manage the intervention groups, how to implement the structure of math intervention with their current curriculum and how to assess students in intervention groups and to evaluate their effectiveness in using this instructional strategy.

Instructional Methods: Throughout this course we will use a variety of instructional methods, including mini-lectures, discussions, readings and videos.

Grading: Your grade will be based on the following percentages:

You must get at least 75% to pass the class.

Introductory survey/Preassessment about Math Intervention.	20%
Online Quizzes – Quizzes about selected modules.	25%
Final Exam – Online Exam about Math Intervention	30%
Completion of all modules	25%

Important Dates: You have 90 days to complete the course upon initiation of the course.

Academic Integrity: Please make sure that all your work is your own. You are expected to do your own work and not plagiarize from the work of others. The work is to be reflective of the theories and concepts that we study and the implementation with your class.

Module 1A – 1 hour* Module 1B– 1 hour*	<p>Universal Design ESSENTIAL QUESTION: How are you assessing students at the beginning of the year? Primary Links for the Session: http://www.udlcenter.org/ http://www.cast.org/our-work/about-udl.html#.W0ZKh9g3n3Q https://www.gse.harvard.edu/news/uk/08/12/importance-universal-design-learning</p> <p><i>Reflection: What does math intervention look like right now at your school? How do you determine who should be getting intervention?</i></p>
Module 2A – 1 hour* Module 2B– 1 hour*	<p>Focus on Whole Numbers ESSENTIAL QUESTION: How do you assess for fluency with whole numbers? Primary Links for the Session: https://achievethecore.org/page/254/progressions-documents-for-the-common-core-state-standards-for-mathematics (click on and read through the number and base ten progression) https://www.ncetm.org.uk/resources/40534 http://virtualnerd.com/middle-math/number-algebraic-sense/whole-number-operations/whole-numbers-place-value https://achievethecore.org/page/2778/multi-digit-addition-and-subtraction-mini-assessment</p> <p><i>Reflection: What do your current assessments around whole numbers look like? What level of analysis do they provide you?</i></p>

<p>Module 3A – 1 hour* Module 3B– 1 hour*</p>	<p>Explicit and Systematic ESSENTIAL QUESTION: Is your instruction explicit and systematic? What evidence do you have of this?</p> <p>Primary Links for the Session: https://iris.peabody.vanderbilt.edu/module/math/cresource/q2/p04/ http://www.fivefromfive.org.au/explicit-instruction/ http://www.evidencebasedteaching.org.au/robert-marzano-vs-john-hattie/</p> <p><i>Reflection: What stands out for you about explicit and systematic instruction?</i></p>
<p>Module 4A – 1 hour* Module 4B– 1 hour*</p>	<p>Word Problem Structure ESSENTIAL QUESTION: How are you teaching word problems?</p> <p>Primary Links for the Session: https://www.mathplayground.com/thinkingblocks.html http://gregtangmath.com/wordproblems http://cgi-math.pbworks.com/w/page/5500588/Story%20Problems%20to%20Share Videos https://www.youtube.com/watch?v=eQO47pDVC-8 https://www.youtube.com/watch?v=HWxAqRpXug https://www.youtube.com/watch?v=cM-DMfd9VAw https://www.youtube.com/watch?v=iX9f7Et3Aj0 https://gfletchy.com/2015/01/12/teaching-keywords-forget-about-it/</p> <p>Google: South Dakota Counts CGI & South Dakota Counts CGI Multiplication and Division Thinking</p> <p><i>Reflection: How familiar are you with word problem structures right now? Do you teach with these in mind? Do your students use this framework for thinking about word problems? What will be your next steps?</i></p>
<p>Module 5A – 1 hour*</p>	<p>Visual Representations ESSENTIAL QUESTION: How are you scaffolding your instruction with visual representations?</p>

<p>Module 5B- 1 hour*</p>	<p>Primary Links for the Session: https://www.mcrel.org/four-tips-for-using-nonlinguistic-representations/ https://powerupwhatworks.org/strategy-guide/visual-representations-teach-tech http://www.ldonline.org/article/61885/</p> <p>*Google: Nonlinguistic Representations in Mathematics melissajklein</p> <p>Reflection: <i>What role does visual representations currently play in the teaching and learning of math in your classroom? What might you add to what you already do based on this module?</i></p>
<p>Module 6A – 1 hour* Module 6B- 1 hour*</p>	<p>Basic Fact Fluency ESSENTIAL QUESTION: How are you monitoring fluency? Primary Links for the Session: https://guidedmath.wordpress.com/math-running-records-videos/ Google and Read: Assessing basic fact fluency by Kling and Bay-Williams</p> <p>Reflection: <i>What do your current basic math fact fluency assessments look like? Do they assess all of the 4 elements – accuracy, flexibility, automaticity and efficiency?</i></p>
<p>Module 7A – 1 hour* Module 7B- 1 hour*</p>	<p>Progress Monitoring ESSENTIAL QUESTION: How are you currently progress monitoring your students? Primary Links for the Session: http://www.rtinetwork.org/learn/research/progress-monitoring-within-a-rti-model https://www.rti4success.org/essential-components-rti/progress-monitoring</p> <p>Reflection: <i>What new ideas do you have about progress monitoring?</i></p>
<p>Module 8A – 1 hour* Module 8B- 1 hour*</p>	<p>Motivated Strategies ESSENTIAL QUESTION: How do you motivate your students? Primary Links for the Session: https://www.edweek.org/ew/articles/2018/01/17/students-thrive-when-they-see-purpose-in.html http://www.gettingsmart.com/2016/08/15-actionable-strategies-for-increasing-student-motivation-and-engagement/ https://www.pearsoned.com/encouraging-positive-student-engagement-and-motivation-tips-for-teachers/</p>

<https://cft.vanderbilt.edu/guides-sub-pages/motivating-students/>

<https://www.facultyfocus.com/articles/effective-teaching-strategies/10-ways-to-promote-student-engagement/>

Reflection: *What stands out for you about the discussion of motivating your students?*

*Each module has two parts (A & B) for 1 hour each that will include videos, reflection, discussion and external links to readings and videos

Readings/Resources: Throughout the course there are several links that should be read

Main Link: <https://ies.ed.gov/ncee/wwc/PracticeGuide/2>

*Module 1:

http://udlguidelines.cast.org/?utm_medium=web&utm_campaign=none&utm_source=udlcenter&utm_content=site-banner

Videos:

*Module 2A:

http://www.montereyinstitute.org/courses/DevelopmentalMath/COURSE_TEXT_RESOURCE/U01_L1_T1_text_final.html

Additional Resources: Throughout the course there are several links with additional information. These links are also shown here on the syllabus.

Discussion Board: There is a discussion board in the course. Students are encouraged to contribute to the ongoing discussion of the course. The discussion board is a great place to record responses to reflections.

Examples of Quizzes

Module 4

1. What are the 4 types of addition and subtraction problem types?
2. What are the 3 types of multiplication and division problem types?
3. What are the 5 levels of 2 step problems?
4. What does the research say about teaching key words as a strategy for solving word problems?
5. What is the difference between a strategy and a model when solving word problems?

Module 8:

1. What is meant by a “mindset of purpose and relevance?”
2. What is the difference between an “authentic learning experience” and an “abstract challenge?”
3. How does goal-setting and goal-tracking impact student engagement?
4. The research shows that teachers play a major role in the motivation and engagement of their students (Stephens, 2015). Name 3 ways that teachers can positively influence the motivation and engagement of their students.
5. What is the relationship between intrinsic and extrinsic motivation factors in a classroom?