

Mental Math Chats: Leveraging Meaningful Math Discussions

EDTU 9119

1 Semester Credit/Unit

Instructor – Maureen Surbella

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Course Syllabus

Course Overview: Develop an understanding of what a math chat is. Learn how to have meaningful mathematical discussions with number/symbol relationships and computation fluency using mental math as the staple for learning. Develop a cultural transformation in their classroom using inquiry-based learning and dialogue. *A Google email account and use of Drive is recommended for this course.*

Course Learning Objectives: This course will give students the opportunity to:

- Explore the components of mental math chats and the processes for integration into a math curriculum.
- Develop computational strategies to effectively solve problems.
- Create classroom lessons/activities specific to your student population.
- Scribe and communicate ideas and solutions in which may be compiled and shared with others taking the course.

Course Relation to CCS or other Professional Standards

CCSS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.

CCSS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others.

How to Submit Coursework

Each completed assignment in this course is submitted to the instructor for review. It is preferred that assignments be submitted to the instructor via Google Drive. Assignments can also be submitted through Brightspace course Assignment tabs as Word docs or pdfs.

- Submit assignments to use for sharing: msurbella@edsonline.com
- Create a Shared Drive folder. Name the folder with your first initial and last name and (i.e. DJones Mental Math)
- Each assignment is to be shared separately through Gmail and shared with course instructor with instructor given editing rights. **Placing your assignment in your shared folder does not generate a notification.**
- Each assignment must include your first initial and last name along with the Assignment #. (i.e. DJones Mental Math Assignment 4. Include the course number in the subject line in your e-mail.
- Each document needs to have your full name, course number and assignment number at the top of each document.

You will receive feedback from your instructor within 5 days indicating successful completion of the assignment. Assignment grades will be averaged for the final course grade.

Course Assignments

ASSIGNMENTS	DESCRIPTION
<p>Assignment 1:</p> <p>Getting Started/ Rationale for Learning</p>	<p>Objective: To explore the purpose of a mental math chat.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1) Read: “Use Number Talks To Boost Math Reasoning” alks-to-boost-math-reasoning/ 2) Complete Mathematics Teaching Practices Self-Assessment 3) Reflect: Write- approximately 250-500 words based on your Self-Assessment and Your Understanding of Boosting Mathematical Reasoning and Fluency. <p>What to submit: Place 250-500 word reflection and attach your completed self-assessment in your Shared Course Folder. Notify msurbella@edsonline.com</p>
<p>Assignment 2:</p> <p>Framework of Mental Math Chat</p>	<p>Objective: To develop an understanding of the Math Chat Framework</p> <p>Activities:</p> <ol style="list-style-type: none"> 1.) Read: Number Talks Frameworks 2.) Watch Number Talks: Building Numerical Reasoning by Sherry Parrish 3.) Notes and Key Takeaways Video Notes and Key Takeaway Form <p>What to Submit: Place your video Notes and key takeaways in your Shared Course Folder. Notify msurbella@edsonline.com</p>
<p>Assignment 3:</p> <p>Questioning Techniques</p>	<p>Objective: Teachers will develop key questioning techniques to guide the teacher-led, student-centered approach.</p> <p>Activity: Read three articles on effective questioning techniques.</p> <ol style="list-style-type: none"> 1.) Read: Effective Questioning to Promote Discourse Adapted from NCSM Great Tasks for Mathematics, 6-12 by Schrock, Norris, Pugalee, Seitz, and Hollingshead, 2013 2.) Read: Using Reflective Questioning to Promote Collaborative Dialogue" 3.) Read: Effective Questioning and Classroom Talk by Ged Gast Creativity Consultant 4.) Select two articles to compare. Use the template titled “Comparing Two Articles” which the link is provided below and is available in Course Assignments. Comparing two articles template <p>What to Submit: Place your comparison analysis of two articles in your Shared Course Folder. Notify msurbella@edsonline.com</p>

<p>Assignment 4:</p> <p>Math Chats across the operations</p>	<p>Objective: To develop strategies across all operations.</p> <p>Activity: Read strategies for all operations.</p> <p>1.) Read the two links below:</p> <p>Additions and Subtraction Strategies Multiplication and Division Strategies</p> <p>2.) Create strategies/scenarios for each operation.</p> <p>3.) Then, select a specific operation (adding, subtracting, multiplying or dividing) which is appropriate for the grade/level you teach. Create understanding of each strategy and apply NEW example or number problem for each strategy for that operation.</p> <p>4.) Create a table or other document to demonstrate these strategies.</p> <p>What to Submit: Place your document demonstrating strategies in your Shared Course Folder. Notify msurbella@edsonline.com</p>
<p>Assignment 5:</p> <p>Lesson Planning</p>	<p>Objective: To create a lesson plan that encourages discourse and computational fluency.</p> <p>1.) Activity: Create one lesson plan that demonstrates and encourages computational fluency.</p> <p>2.) Create a lesson plan using the template provided. Lesson Plan Template</p> <p>3.) Reference Example Exemplary Lesson Plan</p> <p>What to Submit: Completed Lesson Plan Template in your Shared Course Folder. Notify msurbella@edsonline.com</p>
<p>Assignment 6:</p> <p>Action Project</p>	<p>Objective: To Build a Set of Math Talks Across a Mathematical Concept</p> <p>1.) Activity: Click: Action Project Instructions</p> <p>What to Submit: Please submit the complete Action Project in your Shared Course Folder. Notify msurbella@edsonline.com</p>

<p>Assignment 7:</p> <p>Reflection, Resources, and Reminders:</p>	<p>Objective: The purpose of this reflective essay is for you to reflect on your experiences and integrate your learning from all aspects of the course, including the assigned readings, class activities, and projects.</p> <p>Assignment:</p> <p>Part 1: Review your responses to your first reflection in Assignment 1. Have any of your thoughts changed? Solidified? Do you have a deeper understanding?</p> <p>Part 2: In 2-3 pages (approximately 500 words, double-spaced) address the following three questions.</p> <ol style="list-style-type: none"> 1. What did you learn about yourself through this course? How have your thoughts and feelings evolved over this course? 2. To you, what is the most meaningful part of this course, personally, and/or as it relates to applying math chats in your teaching of mathematics? 3. Where are you in your consideration of using Math Chats? Is this learning a good fit for you? Why or why not? <p>What To Submit: Place your reflection essay in your Shared Course Folder. Notify msurbella@edsonline.com Course Reflection Template</p>
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Course Assessment Rubric

EXCELLENT	ACCEPTABLE	NOT ACCEPTABLE
Meets or Exceeds Course Objectives: A to A-	Majority of Work Meets Course Objectives: B+ to B-	Needs Considerable Improvement: Resubmit Work Suggested: C or below
Excellent mathematical understanding of the knowledge and skills of course objectives.	Proficient understanding of mathematical knowledge and skills of course objectives.	Minimal no mathematical understanding of knowledge and skills of course objectives.
Assignment responses exhibits outstanding evidence of new knowledge shown by several solutions to the same problem.	Assignment responses exhibits proficient evidence of new knowledge shown by several solutions to the same problem.	Assignment responses exhibits little to no evidence of new knowledge shown by several solutions to the same problem.
Work submitted was organized and clearly articulated.	Most work submitted was organized and clearly articulated.	Work submitted was not organized or not clearly articulated.
Excellent lesson plan which incorporates the strategy and provides students the opportunity for exposure to multiple strategies to solve problems.	Lesson plan is complete which incorporates the strategy and provides students the opportunity for exposure to multiple strategies to solve problems.	Lesson plan is incomplete which does not incorporate the strategy and struggles for students to have the opportunity for exposure to multiple strategies to solve problems.
Work is free of spelling and/or grammatical errors.	Work has few spelling and/or grammatical errors.	Work has numerous spelling and/or grammatical errors.