CALIFORNIA STATE UNIVERSITY, SAN MARCOS
COLLEGE OF EDUCATION

EDMS 543B Elementary Mathematics Education
UH 441, Tuesday 5:30-8:15
Fall 2010
CRN 41095

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College of Education Mission Statement

The mission of the College of Education Community is to collaboratively transform public education by preparing thoughtful educators and advancing professional practices. We are committed to diversity, educational equity, and social justice, exemplified through reflective teaching, life-long learning, innovative research and on-going service. Our practices demonstrate a commitment to student-centered education, diversity, collaboration, professionalism, and shared governance. *(Adopted by COE Governance Community, October, 1997).*

Course Description and Objectives

EDMS 543 focuses on how children develop mathematical understanding; children's mathematical thinking, curriculum development; methods, materials, planning, organization and assessment in various elementary school curricula; and curriculum integration. Methods of cross-cultural language and academic development are integrated into the course.

Learning to teach mathematics well is challenging and, therefore, this course will only begin your education in learning how to teach mathematics. This course is but one stage in your process of becoming a mathematics teacher. We are expected to: (a) deepen our understanding of the mathematics taught at the elementary level, including such topics as place value, base systems, number theory, fractions, proportions, statistics, and algebra, (b) develop an understanding of the current issues and practices in mathematics education, (c) develop a familiarity with the NCTM and California learning standards, (d) develop an understanding of children's content specific thinking, (e) learn to teach content specific concepts using effective and appropriate strategies, including the educational use of technology, (f) practice how to teach for mathematical understanding, and (g) develop strategies to create a classroom environment that promotes the investigation and growth of mathematical ideas and to ensure the success of all students in multi-cultural settings.

Course Prerequisites

- Admission to the Multiple Subject Credential Program
- Commitment to help children understand and do mathematics

Required Texts

- Van de Walle, John A. (2010). Elementary and middle school mathematics: Teaching developmentally (7th ed.). Boston: Pearson Education, Inc.
- California Department of Education (2000). Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve. Sacramento, CA: Author. This document can be found at: http://www.cde.ca.gov/ci/ma/cf/index.asp
- National Council of Teachers of Mathematics (2000). Principles and standards for school mathematics. Reston, VA: author. Can be found on the WWW at: http://standards.nctm.org/
- Star Test Blueprints for Standards Items: http://www.cde.ca.gov/ta/tg/sr/blueprints.asp

Authorization to Teach English Learners

This credential program has been specifically designed to prepare teachers for the diversity of languages often encountered in California public school classrooms. The authorization to teach English learners is met through the infusion of content and experiences within the credential program, as well as additional coursework. Students successfully completing this program receive a credential with authorization to teach English learners.
(Approved by CCTC in SB 2042 Program Standards, August 02)

STUDENT LEARNING OUTCOMES

Teacher Performance Expectation (TPE) Competencies

The course objectives, assignments, and assessments have been aligned with the CTC standards for Multiple Subject Credential. This course is designed to help teachers seeking a California teaching credential to develop the skills, knowledge, and attitudes necessary to assist schools and district in implementing effective programs for all students. The successful candidate will be able to merge theory and practice in order to realize a comprehensive and extensive educational program for all students. You will be required to formally address the following TPEs in this course:

TPE 1A, TPE 2

California Teacher Performance Assessment (CalTPA)

Beginning July 1, 2008 all California credential candidates must successfully complete a state-approved system of teacher performance assessment (TPA), to be embedded in the credential program of preparation. At CSUSM this assessment system is called the CalTPA or the TPA for short.

To assist your successful completion of the TPA a series of informational seminars are offered over the course of the program. TPA related questions and logistical concerns are to be addressed during the seminars. Your attendance to TPA seminars will greatly contribute to your success on the assessment.

Additionally, COE classes use common pedagogical language, lesson plans (lesson designs), and unit plans (unit designs) in order to support and ensure your success on the TPA and more importantly in your credential program.

The CalTPA Candidate Handbook, TPA seminar schedule, and other TPA support materials can be found on the COE website provided at the website provided:
http://www.csusm.edu/coe/CalTPA/ProgramMaterialsTPA.html

College of Education Attendance Policy

Due to the dynamic and interactive nature of courses in the College of Education, all students are expected to attend all classes and participate actively. At a minimum, students must attend more than 80% of class time, or s/he may not receive a passing grade for the course at the discretion of the instructor. Individual instructors may adopt more stringent attendance requirements. Should the student have extenuating circumstances, s/he should contact the instructor as soon as possible. *(Adopted by the COE Governance Community, December, 1997).*

For every absence you will lose 5 points. You are able to earn extra credit for one absence. If you miss two class sessions or are late (or leave early) more than three sessions, you cannot receive a grade of "A". Should you have extenuating circumstances, contact the instructor as soon as possible. Please discuss with me any extenuating circumstances that will cause you to miss class prior to your absence. Attendance will be taken at each class session. Furthermore, grades on assignments turned in late will be lowered unless **prior arrangements** have been made with the instructor.

Students with Disabilities Requiring Reasonable Accommodations

Students with disabilities who require reasonable accommodations must be approved for services by providing appropriate and recent documentation to the Office of Disable Student Services (DSS). This office is located in Craven Hall 5205, and can be contacted by phone at (760) 750-4905, or TTY (760) 750-4909. Students authorized by DSS to receive reasonable accommodations should meet with their instructor during office hours or, in order to ensure confidentiality, in a more private setting.

Course Requirements

Reading Reflections (30 points)

Most weeks, students will reflect on the assigned readings. These reflections should clearly articulate your thoughts based on prompts provided by the instructor. Articulation of personal connection as well as subjects for which you wish more clarity or information will be used to inform instruction in this course. ***Reflections are usually due Sunday before Tuesday's class. I review them to inform instruction.***

Math Activity with "Thinking Tool" (20 points)

You and team will provide a 30-40 minute experience with a topic that introduces the class to "thinking tools" one can employ for learning. You will sign up for a specific class session. The purpose is to design an activity for a specific standard that offers students an opportunity to think through a problem with a physical tool. Specific details and requirements for this activity will be given in class and are provided below.

Student Interviews (40 points)

You will conduct a series of two different student interviews based on questions provided in class. For each interview, you will pose mathematical problems to any one student at a predetermined grade level. The purpose is to get you to begin thinking about students' mathematical understanding, to learn how to effectively pose questions and interpret the meaning of students' answers, and to provide you with an opportunity to interact with students.

Mathematical Resources and Lesson (80 points)

The purpose of this assignment is to help you learn how to design effective mathematical activities and lessons and to provide an opportunity for you to practice teaching mathematics. Working in small groups of 2-3 members, your team will first compile 10 resources each on a predetermined mathematical topic (10 points). Each pair of students will design one standards-based lesson that you will teach. (30 points). The purpose of this activity is to help you learn how to design effective mathematical activities, to provide you with an opportunity to begin compiling resources, and to provide an opportunity for you to practice teaching mathematics.

Participation & Professionalism (15 points)

This course is designed for active learning during class sessions. In order for this course to succeed for individuals and the group, students must come to class prepared to discuss assigned readings/topics and to participate in class activities.

Final Reflection (15 points)

This final reflection should articulate your progress on the journey towards becoming an excellent math instructor. What have you learned? What still concerns/confuses you? What elements of this course will you make a promise to yourself to integrate into your instruction that you would not have known before?

For every absence you will lose 5 points. You are able to earn extra credit for one absence.

Extra Credit (10 points): Extra Interview

Grading Standards

Grades will be based on the following grading scale:

A	93 – 100%
A-	90 - 92%
B+	88 – 89%
B	83 – 87%
B-	80 – 82%
C+	78 – 79%
C	73 – 77%
C-	70 – 72%

All University Writing Requirement

The CSUSM writing requirement of 2500 words is met through the completion of course assignments. Therefore, all writing will be looked at for content, organization, grammar, spelling, and format.

CSUSM Academic Honesty Policy

"Students will be expected to adhere to standards of academic honesty and integrity, as outlined in the Student Academic Honesty Policy. All written work and oral presentation assignments must be original work. All ideas/materials that are borrowed from other sources must have appropriate references to the original sources. Any quoted material should give credit to the source and be punctuated with quotation marks.

Students are responsible for honest completion of their work including examinations. There will be no tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to the instructor's attention. The instructor reserves the right to discipline any student for academic dishonesty in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole."

Incidents of Academic Dishonesty will be reported to the Dean of Students. Sanctions at the University level may include suspension or expulsion from the University.

Plagiarism:

As an educator, it is expected that each student will do his/her own work, and contribute equally to group projects and processes. Plagiarism or cheating is unacceptable under any circumstances. If you are in doubt about whether your work is paraphrased or plagiarized see the Plagiarism Prevention for Students website http://library.csusm.edu/plagiarism/index.html. If there are questions about academic honesty, please consult the University catalog.

USE of TECHNOLOGY

Students are expected to demonstrate competency in the use of various forms of technology (i.e. word processing, electronic mail, WebCT6, use of the Internet, and/or multimedia presentations). Specific requirements for course assignments with regard to technology are at the discretion of the instructor. Keep a digital copy of all assignments for use in your teaching portfolio. Most assignments will be submitted online, and some will be submitted in hard copy as well. Details will be given in class.

Electronic Communication Protocol:

Electronic correspondence is a part of your professional interactions. If you need to contact the instructor, e-mail is often the easiest way to do so. It is my intention to respond to all received e-mails in a timely manner. Please be reminded that e-mail and on-line discussions are a very specific form of communication, with their own nuances and etiquette. For instance, electronic messages sent in all upper case (or lower case) letters, major typos, or slang, often communicate more than the sender originally intended. With that said, please be mindful of all e-mail and on-line discussion messages you send to your colleagues, to faculty members in the College of Education, or to persons within the greater educational community. All electronic messages should be crafted with professionalism and care.

Things to consider:

- Would I say in person what this electronic message specifically says?
- How could this message be misconstrued?
- Does this message represent my highest self?
- Am I sending this electronic message to avoid a face-to-face conversation?

In addition, if there is ever a concern with an electronic message sent to you, please talk with the author in person in order to correct any confusion.

Date	Session Topics	Reading Topics and Chapters *(Reflections are due either Sunday or Monday before class)*	Assignments to be completed BEFORE Class Session
Session 1 8/31/10	**Introduction to Mathematics Education** •Approaching instruction with a love for math •Social construction of knowledge		
Session 2 9/7/10	**How best to learn math?** • Conjecture and reflection • What research says • "Doing Math"	Van de Walle: Ch 2, *Exploring What It Means To Know And Do Mathematics.* **(Reflection to be assigned)**	*Reading reflection to be assigned (Due **Sunday, 9/5).***
Session 3 9/14/10	**How best to teach math?** •First Phase of Three Phase Lesson Model •The Textbook's Role •*Assignment Help:* Conducting Student Interviews	Van de Walle: Ch. 3, *Teaching Through Problem Solving.;* Ch.14 *Algebraic Thinking*, pp.254-264 only. **(Reflection to be assigned)**	*Reading reflection to be assigned (Due **Sunday, 9/12**).* .
Session 4 9/21/10	**How do I know there is learning? Lesson design & assessment:** •The instructional advantages of *making thinking public*. -- *Form Working Groups for "Tools" assignment*	Van de Walle: Ch. 4, *Planning in the Problem-Based Classroom;* Ch. 5, *Building Assessment Into Instruction.* **(Reflection to be assigned)**	*Reading reflection to be assigned (Due **Sunday, 9/19**).*
Session 5 9/28/10	**Planning for application and connection for students:** •The power of models for student depth of knowledge.	Van de Walle: Ch 6	*Reading reflection to be assigned (Due **Monday**, **10/4)*** **Interview 1 due for first ½ of class.**
Session 6 10/5/10	**Access for all students. Multiple points of entry.**	Van de Walle: Ch 8, Early Number Concepts and Number Sense. Ch 9, *Developing Meaning For The Operations.*	*Reading reflection to be assigned (Due: TBD).* **Interview 1 due for second ½ of class.** ***Thinking tools #1 meet with Professor to discuss presentation. Meet at 5 or 8:15***

Session 7 10/12/10	**Student to Student Talk**	**CGI Video Analysis**	*Blog Assignment* *(Due **Monday**, 10/11)* **Thinking Tools presentation #1 *-Whole numbers/ Counting Grades k-1*** ***Thinking tools #2 meet with Professor to discuss presentation. Meet at 5 or 8:15***
Session 8 10/19/10	**Fostering Deeper thinking:** •Modeling, big ideas, procedural fluency •Writing in the math class	Van de Walle: Ch 10, Helping Children Master the Basic Facts. Ch. 11, Developing Whole # Place value Concepts	*Reading reflection to be assigned (Due TBD).* **Thinking Tools presentation #2 *- Whole numbers/ place value Grades 2-5*** ***Thinking tools #3 meet with Professor to discuss presentation. Meet at 5 or 8:15***
Session 9 10/26/10	**Lesson planning refinement:** •Student-to-student discussion •Conjecture •Metacognition/Reflection	Van de Walle: Ch 12, Developing Strategies for Whole # Computation Ch 13: Using Computational Estimation w/ Whole #'s.	*Reading reflection to be assigned (Due TBD).* **Thinking Tools presentation #3 *-Whole number Computation Grades 1-6*** ***Thinking tools #4 meet with Professor to discuss presentation. Meet at 5 or 8:15***
Session 10 11/2/10	**Lesson Planning workshop – Final touches.**	Van de Walle: Ch 15, Developing Fraction Concepts Van DeWalle: Ch. 16, Developing Strategies for Fraction Computation	*Reading reflection to be assigned (Due TBD).* **Thinking Tools presentation #4 *-Fraction concepts Gr.2-6*** **3-Phase Lesson Due** ***Thinking tools #5 meet with Professor to discuss presentation. Meet at 5 or 8:15***

Session 11 11/9/10	**Writing in Math**	Van de Walle: Ch. 17, *Decimals, Percents.*	*Reading reflection to be assigned (Due TBD).* **•Interview 2 due for first 1/3 of class.** **Thinking Tools presentation #5 *-Decimal concepts Gr 2-6*** ***Thinking tools #6 meet with Professor to discuss presentation. Meet at 5 or 8:15***
Session 12 11/16/10	**TPA Lesson Workshop.**	Van De Walle: Ch. 18, Proportional Reasoning. .	*Reading reflection to be assigned (Due TBD).* **•Interview 2 due for second 1/3 of class.** **Thinking Tools presentation #6 *-Proportional reasoning concepts Gr 3-6***
Session 13 11/23/10	**Assessment II Rubrics and Qualitative Criteria**	To Be Determined	•Interview 2 due for last 1/3 of class. **•TPA Lesson and reflections due.**
Session 14 11/30/10	**Review of Big Ideas**	To Be Determined	
Session 15 12/7/10	**Final reflections on the course**	To Be Determined	**Final reflections due**

Math Activity with "Thinking Tool"
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Your team will provide a 30-40 minute experience with a topic that introduces the class to "thinking tools" one can employ for learning. This means anything that can be manipulated, such as beans, blocks, cards, string. The point is that students use these to model or make and test conjectures about mathematics. In a dynamic classroom, students are familiar with and **choose from** various mathematical thinking tools.

Written Assignment: The purpose for the presenter is not to write a full lesson but to practice *introducing* a tool to a class. Use the guidelines for planning (below) to outline the description of how you planned this presentation. One copy of this description will be given to me on the day you present and submitted electronically the same day. The document will reference the planning questions for all manipulatives chosen. The whole team turns in one master document.

Planning:
Research manipulatives used for instruction of the topic and grade level you are given. Identify the standard or standards that most likely would be explored using the tools. You will be setting up 3-4 stations for the class to rotate through. Your planning for each station should answer the following questions:
1. What is the concept I want students to explore?
2. Which math process(es) will this activity with a tool help to elicit? (Refer to bullets from NCTM at http://standards.nctm.org/document/appendix/process.htm)
3. Is there any thinking a student will do using this tool that may help to minimize common errors and misconceptions? (Be sure to mention the specific errors and misconceptions.)

Presentation day (Implementation):
Participants need to be engaged in each of the activities you provide. What does that look like?
•People are talking to each other about the activity and this conversation enhances their thinking about the lesson concept.
•The activity should compel individuals to handle the tool as part of their way of talking about a concept. (See pp.27-29 in text starting with "Multiple Representations to Support Relational Understanding".)

STUDENT INTERVIEW GUIDELINES
EDMS 543

Student interviews are designed to provide students with opportunities to focus on a single child's thinking about mathematics. It will also help students to improve their use of inquiry for assessment purposes and to better understand elementary level students with different understandings.

You will interview one child for each content interview (make sure to look at the appropriate grade level for each interview) and write up your evaluation of the student (please also submit the child's written work attached to your paper). You will conduct 2 different interviews. Questions are provided in WebCT6.

<u>Prior to the interview</u>

- You should arrange with a teacher (or parent of a child you know) to interview one child for 20-30 minutes in a quiet place outside the classroom, if possible.

- Provide the teacher with some understanding of what the interview will contain and see if he/she has any thoughts about how this child will do on the assessment.

- Develop a list of questions you may want to use if the child is not forthcoming with a response. For example, if the child says "I just knew it", you might respond with "What did you think about first?" or "If you were helping a friend, how would you explain what you did?"

During the interview

Work with the child individually. Begin the interview by informing the child that you will be giving him/her a series of math problems to solve and that you are interested in his/her thinking process and in the strategies s/he uses to solve these problems. Inform the child that s/he can solve the problems in any way s/he wants. Please remind the child that the interview is voluntary and that s/he can end the interview at any time (if a student does end early then please find another willing student). Do everything you can to help make the child comfortable.

Orally provide the child with each problem, posing them one at a time, you received from class and provide him/her with sufficient time to complete each problem. You may also want to provide the child with a written copy of each problem and/or manipulatives.

After the child answers each problem you should ask a variety of questions that will help you to better understand the child's thinking and to assess his/her mathematical understanding. **You will want to note the questions you ask and the child's responses** and it may be necessary to ask the child to wait while you are writing -- it is OK to ask the child to wait. **You should not tape-record/video-tape the interview without parental permission**.

During the interview, be sure to consider the following:

- The best thing you can be is genuinely curious. Remember the point of the interview is to discover how the child thinks -- ***NOT*** to guide the child to the correct answer (try to fight the urge to be "teacher").
- Offer manipulatives and other strategies/methods to support the student and their ability to solve the problems and demonstrate their thinking.
- Be careful to respond similarly to correct and incorrect answers. Be curious about all solution strategies -- not just the ones leading to incorrect solutions.
- Your primary role is to listen. Make sure you allow enough "wait time" -- children need time to think before answering.
- Make sure the child feels comfortable during the entire interview. If the child clearly cannot answer a problem, move on to the next problem. If you feel that the child is really struggling and frustrated, you may want to end the interview or give the child a problem you are fairly certain s/he can solve and then end the interview. If you cut an interview short because of student difficulty, be sure to discuss your reasoning in your write-up.

After the interview

You should write no more than a two-page reflection that includes a brief discussion on each of the following two points:

- What specifically did you learn about this child's mathematical understanding? Here you will want to make some claims about the mathematics your student understands or doesn't

understand. I am looking for more of an explanation than just your student could or couldn't solve a particular problem.

- What specifically might you do for this child if you were his/her teacher? Here you might want to include discussions about such issues as curriculum, instructional strategies, etc.

Grading:
Each interview will be worth a total of 20 points. More specifically, I will be looking for nicely written papers that clearly and specifically express what you learned about: 1) the child's mathematical understanding and 2) what you would do next for this child if you were his/her teacher (again be specific here). For example, you might recognize that this student lacks a conceptual understanding of multiplication – so as this child's teacher you might want to pose meaningful problems related to multiplication, etc.

*NOTE: When you turn in your write-up, you should also include the child's written work (if it exists) and without the student's "actual" name listed.

MATHEMATICAL RESOURCES ASSIGNMENT (10 points embedded in final Lesson total)

In preparation for your Lesson Assignment, you and your partner will construct an Annotated List of Resources that your fellow colleagues will find helpful when teaching your mathematical topic to students. Your list should include resources that directly relate to your mathematical topic (e.g., algebra, geometry, etc.). For example, you should include such things as children's literature, teacher support materials, manipulatives, WWW locations, research articles, videos or movies, software, etc. Please include any useful information that you find when researching your topic so that your colleagues can learn from your work (but do not include duplicated pages from teacher workbooks, rather provide citations along with short descriptions of your resources). I will be looking to find well- constructed packets of information. If you partition the workload it should not be an overwhelming task. If each group prepares a packet of materials that is filled with important resources, and we share that information in class, then you will each have a wealth of information on some of the important mathematical resources for use when you teach! A general "rule of thumb" might be for your group to try and find 5 resources in each of the areas mentioned (a minimum of 10 resources per group member). Some topics will naturally have more resources than other topics.

Your group will need to turn in one nicely prepared copy of your List of Resources. Your group should also be prepared to include in your lesson reflection some highlights of the resources you found (consider bringing in a few of the items that you found most helpful when planning your presentation and resources for these materials).

This project is purposefully open-ended in the hopes that you will go out and find some great resources for your mathematical topic and for your presentation. You should talk with your master teachers, use the internet, and make use of materials I provide. However, if you have any questions or challenges finding resources, please be sure to ask (I am happy to provide support…I want these to be good so they are useful resources).

Mathematical Lessons (Done in 2 Stages)

Working in small groups or partners, students will demonstrate various methods to teach a mathematical concept. Groups of two will work together to prepare lessons in a given strand of the elementary math curriculum. Each member must prepare to present the lesson to a class at a participating school or another alternative setting.

This process will be done in two stages. Stage one is a 3-phase lesson that focuses on strategies for student inquiry and engagement in mathematics. Stage two will include this 3-phase lesson embedded in a full COE template that provides more specific information about a complete planning experience. You will turn in both lessons. We will have time in class to work on these as well as reflect on the lesson.

Sage 1: Three-Phase Lesson Assignment (40 points)

You will prepare a Three-phase lesson plan on the template I provide. This lesson will be taught and your reflection will include revisions to this written plan.

Scoring Rubric For 3-Phase Lesson Plan

The *Launch* Phase (Anticipatory Set and Teaching to the Objective) 10 points	Provides an introduction to the lesson …	& effective introduction that motivates students, challenging/interesting problem(s) that orient student thinking and engages all learners…	& establishes expectations and provides script for teacher and times for each activity.
The *Explore* Phase (Guided Practice) 10 points	Describes how you will ask questions that guide and allow students to explore the math concepts in the lesson …	& details the steps that build students' conceptual understanding (cognitively demanding tasks instead of merely rule-oriented drill); provides hints/assists and questions you might give as students work …	& predicts what might happen, provides accommodations and modifications for students who may struggle or excel.
The *Summarize* Phase Independent Practice and Reflection) 10 points	Describes how you will wrap up the lesson and structure opportunities for practice at the appropriate level of difficulty for the various students…	& clearly describes how you will format the discussion of the learning task, what questions will you ask to encourage students to draw conclusions and to extend their thinking, etc. …	& provides strategies for increasing students' reflection and meta-cognition between lesson content and the outside world.

Stage 2: COE Lesson Template (40 Points)

LESSON DESIGN ASSIGNMENT GRADING RUBRIC
EDMS 543

Design Component & Criteria	Approaching	Meets (includes the criteria for Approaching)	Exceeds (includes the criteria for Approaching & Meets)
Part I. Elements of Learning Experience (4 points)			
Title, Grade Level, & Time	Provides a title that is related to the lesson activity; provides grade level and time allocation …	& title addresses the math concepts in the lesson; appropriate grade level and time allocation …	& describes where the title fits within a unit plan.
CA Standards and Lesson-specific Learning Objectives and Math Concept(s)	CA Standards are identified and each is addressed in a learning objective or a set of objectives …	& each learning objective is clearly stated in terms of what students are expected to know and do …	& identifies which of the three facets of mathematics learning (procedural proficiency, conceptual understanding, & problem solving) each learning objective is designed to address.
List of materials	Provides a list of materials …	& the materials are appropriate…	& effective materials that help achieve the learning objectives; if uncommon materials are used, describes how to obtain and/or produce them.
Class Description and Developmental Needs	Provides the class demographic information; describes students' prior knowledge & experience...	& includes developmental needs of the students...	& includes ALL groups of students who present a different instructional challenge (ELL, Special Ed, GATE, etc.) and their particular learning needs.
Part II. Assessment Plan (10 points)			
Assessment Strategies and Rubrics	Provides assessment strategies and rubrics for each objective …	& articulates if each strategy is *entry-level, progress monitoring or summative* assessment; clearly describes types of assessment, purpose and implementation (how will you know if they have met the objective) …	& provides multiple opportunities for the instructor to check for understanding and clearly communicates to students about the expectations.
Part III. Instructional Strategies (Points given in 3-Phase Lesson Plan Assignment)			
The *Launch* Phase (Anticipatory Set and Teaching to the Objective)	Provides an introduction to the lesson …	& effective introduction that motivates students, challenging/interesting problem(s) that orient student thinking and engages all learners…	& establishes expectations and provides script for teacher and times for each activity.
The *Explore* Phase	Describes how you will	& details the steps that	& predicts what might

(Guided Practice)	help students explore the math concepts in the lesson …	build students' conceptual understanding (cognitively demanding tasks instead of merely rule-oriented drill); provides hints/assists and questions you might give as students work …	happen, provides accommodations and modifications for students who may struggle or excel
The *Summarize* Phase Independent Practice and Reflection)	Describes how you will wrap up the lesson and structure opportunities for practice at the appropriate level of difficulty for the various students…	& clearly describes how you will format the discussion of the learning task, what questions will you ask to encourage students to draw conclusions and to extend their thinking, etc. …	& provides strategies for increasing students' reflection and meta-cognition between lesson content and the outside world.
Part IV. Differentiation Strategies (6 points)-- Choose ONE group of students who present a different instructional challenge such as ELL, GATE, Special education, etc.)			
Differentiation	Describes the differentiation strategy for the chosen group of students…	& articulates how the strategy addresses the students identity and developmental needs (readiness, interest or learning profile)…	& provides how the strategy will be assessed for effectiveness and altered if needed.
Part V. Rationale & Reflection (10 points)			
Reflection	Reflects on what works and what does not work in the lesson taught…	& includes an in-depth analysis of students' learning outcomes...	& provides specific and effective strategies for improving the lesson.
Part VI. Annotated List of Recourses (10 points)			
Reference List/ Resources	Provides 10 reference items that are specifically related to the lesson…	& for each item, provides an annotated description…	& each annotated description details how the item can be used in teaching/learning.

Total: 40 points. **Due date: Nov. 23, 2010.**