

**CALIFORNIA STATE UNIVERSITY SAN MARCOS
COLLEGE OF EDUCATION (Fall 2008)**

**EDMS 543 (4) –Elementary Mathematics Education (3 Units)
Tuesday: 8:00 AM – 2:45 PM Alvin Dunn Elementary (Rm. 48)**

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Office Hours: Tuesday 2:45 PM -3:45 PM or by appt.

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

This course 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.

Course Prerequisites

Admission to the Multiple Subject/CLAD Teacher Credential Program is a prerequisite. Requires participation/observation in the public schools.

Course Objectives

1. Using reflective writings, teacher candidates will provide ongoing evidence of good depth of understanding as well as application to the classroom, of chosen ideas from weekly assigned readings.
2. Using the interview process to apply the pedagogical content knowledge that is being learned in the course, teacher candidates will improve their use of inquiry for assessment purposes by focusing on students' thinking about mathematics to better understand elementary level students with different understandings.
3. By merging theory and practice in order to enable their future students to understand a mathematical topic and make connections among ideas related to this topic, teacher candidates will participate in the design, construction, and presentation of a reform-minded mathematical activity that focuses on students' mathematical thinking.
4. By compiling an effective list of resources on a predetermined math topic, teacher candidates will demonstrate evidence that they are able to provide students with access to a balanced and comprehensive mathematics curriculum that promotes and enhances student learning and understanding, and provides conceptual understanding of the logic and structure of mathematics, problem-solving skills, and computational and procedural skills.

5. By reflecting on and weaving what has been learned in the course during the semester regarding mathematics standards, reform-minded mathematics ideas, and constructivist teaching and learning methods which enhance how children think and problem solve, teacher candidates will create a mathematics unit as part of a year-long mathematics curriculum plan for one grade level.
6. Teacher candidates will engage in coursework that leads to preparation for engaging in Teaching Performance Assessment (TPA) tasks.

Unique Course Requirements

Students will be required to have access to children in a grade K-6 for the purpose of conducting a series of math interviews to learn about how children think and problem solve.

Required Texts

- Van de Walle, J. A. (2007). *Elementary and middle school mathematics: Teaching developmentally* (6th ed). Boston: Pearson Education, Inc.
ISBN: 0-205-48392-5
The text has a companion Web site:
<http://www.ablongman.com/vandewalle6e>
- California Department of Education (2006). *Mathematics framework for California public schools, kindergarten through grade twelve* (2006 Revised Ed.). Sacramento, CA: Author. This document can be found on the WWW at:
<http://www.cde.ca.gov/ci/ma/cf/documents/mathfrwkcomplete.pdf>. The Web site contains a downloadable PDF file. There are also copies in the library for checkout.
- Turnbull, A., Turnbull, R., & Wehmeyer, M. (2007). *Exceptional lives: Special education in today's schools*. (5th ed). Pearson/Merrill Prentice Hall. ISBN: 0-13-170869-4.

You are required to access the following Web sites and materials for this course.

- National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, VA: Author. This document can be found at:
<http://standards.nctm.org/>
- Star Test Blueprints for Standards Items (grades 2-7)
<http://www.cde.ca.gov/ta/tg/st/documents/math1105.doc>

INFUSED COMPETENCIES

Special Education

Consistent with the intent to offer a seamless teaching credential in the College of Education, this course will demonstrate the collaborative infusion of special education competencies that reflect inclusive educational practices.

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)

Technology

This course infuses technology competencies to prepare candidates to use technologies, emphasizing their use in both teaching practice and student learning. Students are expected to demonstrate competency in the use of various forms of technology (i.e., word processing, electronic mail, WebCT 6, use of the Internet, and/or multimedia presentations). Specific requirements for course assignments with regard to technology are at the discretion of the instructor. Please keep a digital copy of all assignments.

You must use your WebCT email account for this class. The best way to contact me is by WebCT e-mail.

COURSE POLICIES

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. Absences and late arrivals/early departures will affect the final grade. 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 this class, if you miss one class session or are late (or leave early) more than two sessions, you cannot receive a grade of "A" and your highest possible grade is a "B". If you miss two class sessions, your highest possible grade is a "C+".

If possible, please discuss with the instructor 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. Absence is no excuse for not turning in assignments, as they may be sent electronically (e-mail) to the instructor if an absence arises or is anticipated. Please ensure that e-mailed assignments are sent by the start of the class session that the assignment is due. **NOTE: With few exceptions, late assignments will not be accepted.**

All University Writing Requirement

In keeping with the All-University Writing Requirement, all 3-unit courses must have a writing component of at least 2,500 words (approximately 10 pages), which can be administered in a variety of ways. Writing requirements for this course will be met as described in the assignments.

Computer Use During Class Sessions

You are welcome to use a laptop computer in class when working on class assignments, for example. However, you will need to save checking email or other personal computer use for time outside of class. Most students find it disruptive when they are focusing on class activities or listening to presentations and can hear keyboarding in the classroom. Your kind consideration is greatly appreciated by all!

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.

Person-First Language

Use “person-first” language in all written and oral assignments and discussions (e.g., “student with autism” rather than “autistic student”). Disabilities are not persons and they do not define persons, so do not replace person-nouns with disability-nouns. Further, emphasize the person, not the disability, by putting the person-noun first.

Students With Disabilities Requiring Reasonable Accommodations

Students must be approved for services by providing appropriate and recent documentation to the Office of Disabled 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.

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

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.

STUDENT LEARNING OUTCOMES

Teacher Performance Expectation (TPE) Competencies

The course objectives, assignments, and assessments have been aligned with the CTC standards for the 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.

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://lynx.csusm.edu/coe/CalTPA/CalTPAdocuments.asp>

COURSE REQUIREMENTS/ASSIGNMENTS

Each written assignment is expected to have a clear organizational presentation and be free of grammar, punctuation and spelling errors. There will be a reduction in points for the above mentioned errors. Late assignments are not accepted. Prepare carefully for class, and be ready to discuss readings and assignments thoughtfully. Note the Description of Exemplary Students in this syllabus (p. 7).

1. Active Participation and Collaboration (all or nothing credit given)	5%
2. Reading Accountability Journal Entries (Big Ideas Papers)	10%
3. Student Interviews	20%
4. Mathematics Lesson Design	20%
5. Mathematical Resources List	15%
6. Mathematics Curriculum Unit Plan	25%
7. Course Reflection	5%

DESCRIPTIONS OF ASSIGNMENTS

The relative weight for each assignment is indicated as a percentage of the total course grade.

Detailed assignment guidelines and scoring rubrics (course packet) will be provided electronically to each student for all written assignments below. The course calendar/topics schedule is attached to this syllabus.

Active Participation and Collaboration (5%) - Individual

Defined as actively engaging and contributing in all class discussions and activities, students will be evaluated daily. A positive attitude is an important component for establishing the definition for active participation and collaboration. In addition, the student will be expected to exhibit professional behavior and demeanor at all times. All or nothing credit is given for this course component.

Reading Accountability Journal Entries (10%) - Individual

Each week students will write a "meaningful" reflection on the material assigned to be read for that week. Each reflection will be worth 10 points. These reflections should be one full page in length (use an "11" font, line spacing of 1.5, with **only** your name and class session number as a heading), and should clearly articulate your thoughts on the assigned readings and how you might **specifically apply** what you learned from the articles as a teacher in the classroom. Please do not repeat verbatim from the readings. **Other assignments may be given that will substitute the written reflection but not the reading assignment.** These will require more than 1 page in length.

Student Interviews (20%) - Individual Write-ups

You and one of your classmates will conduct two different student interviews based on questions provided in class. Each interview is worth 10 points. 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 Lesson Design (20%) and Resources List (15%) - Group

You will first compile resources on a predetermined mathematical topic and then design a lesson that you will present to your cohorts. The purpose of this assignment is to help you learn how to design effective mathematical activities, to provide you with an opportunity to begin compiling mathematical resources, and to provide an opportunity for you to practice teaching mathematics.

Mathematics Curriculum Unit Plan (25%) - Individual

Teacher candidates will create a standards-based mathematics unit plan for a given grade level as part of a year-long mathematics curriculum plan. This assignment will contribute towards developing skills and dispositions for planning and teaching mathematics in the elementary grades.

End-of-Course Reflection - 5%

- 1) Explain 3 things you will take from this course that you will want to infuse in your own professional teaching. Word process a one-page response to this prompt. Please be very specific and clear in your discussion in regards to the 3 items.
- 2) On a separate sheet of paper, explain 3 ways you have changed as a result of taking this course. Word process approximately a one-page response to this prompt. Be very specific and clear in your discussion in regards to the 3 changes.

Please type your name at the top of both pages.

GRADING SCALE: Grades for this course 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%

Exemplary "A" Students:

- Demonstrate serious commitment to their learning, making full use of the learning opportunities available and searching out the implications of their learning for future use.
- Complete all assignments thoroughly and thoughtfully toward the goal of developing in-depth math projects.
- Make insightful connections between all assignments and their developing overall understanding of mathematical concepts; they continually question and examine concepts in a genuine spirit of inquiry.
- Students show a high level of achievement of course goals.

"B" Students:

- Simply comply with the course requirements and expectations.
- Complete all assignments, usually thoroughly and thoughtfully.
- Usually connect assignments to their developing overall understanding of mathematical concepts; may be satisfied with accepting their learning as it is received without deeply examining concepts or seeking a higher level of understanding.
- Students show reasonable achievement of course goals.

Remember! You are required to maintain a B average (3.0 GPA) in your teacher education courses to receive a teaching credential in the State of California.

Science Curriculum Unit Plan

EDMS 543

	Developing	Nearly Meets	Meets	Exceeds
TPE 1, 1a Subject Specific Pedagogical skills for MS Teaching Assignment (Teaching Mathematics in a MS Assignment)	Candidate's creation of a mathematical unit will demonstrate little to no understanding of how to teach the state adopted academic content standard in mathematics.	Candidate's creation of a mathematical unit will demonstrate some understanding of how to teach the state adopted academic content standard in mathematics.	Candidate's creation of a mathematical unit will demonstrate considerable understanding of how to teach the state adopted academic content standard in mathematics.	Candidate's creation of a mathematical unit will demonstrate exceptional understanding of how to teach the state adopted academic content standard in mathematics.
TPE 4 Making Content Accessible	Candidate's creation of a mathematical unit will demonstrate little to no understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum.	Candidate's creation of a mathematical unit will demonstrate some understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidate's creation of a mathematical unit will demonstrate considerable understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidate's creation of a mathematical unit will demonstrate exceptional understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum
TPE 6, 6a, 6b Developmentally Appropriate Teaching Practices in Grades K-3 & 4-8	Candidate's creation of a mathematical unit will demonstrate little to no understanding in the use of developmentally appropriate teaching practices.	Candidate's creation of a mathematical unit will demonstrate some understanding in the use of developmentally appropriate teaching practices	Candidate's creation of a mathematical unit will demonstrate considerable understanding in the use of developmentally appropriate teaching practices	Candidate's creation of a mathematical unit will demonstrate exceptional understanding in the use of developmentally appropriate teaching practices

Secondary TPE's for this Assignment

- TPE 9 – Instructional Planning
- TPE 10 – Instructional Time

Lesson Design and Presentation Assignment

EDMS 543

	Developing	Nearly Meets	Meets	Exceeds
TPE 1, 1a Subject Specific Pedagogical skills for MS Teaching Assignment (Teaching Mathematics in a Multiple Subject Assignment)	Candidates' lesson design and presentation demonstrates little to no understanding of how to teach the state adopted academic content standard in mathematics	Candidates' lesson design and presentation demonstrates some understanding of how to teach the state adopted academic content standard in mathematics	Candidates' lesson design and presentation demonstrates considerable understanding of how to teach the state adopted academic content standard in mathematics	Candidates' lesson design and presentation demonstrates exceptional understanding of how to teach the state adopted academic content standard in mathematics
TPE 4 Making Content Accessible	Candidates' lesson design and presentation will demonstrate little to no understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidates' lesson design and presentation will demonstrate some understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidates' lesson design and presentation will demonstrate considerable understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidates' lesson design and presentation will demonstrate exceptional understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum
TPE 6, 6a, 6b Developmentally Appropriate Teaching Practices – Grades K-3 & 4-8	Candidates' lesson design and presentation will demonstrate little to no understanding in the use of developmentally appropriate teaching practices.	Candidates' lesson design and presentation will demonstrate some understanding in the use of developmentally appropriate teaching practices.	Candidates' lesson design and presentation will demonstrate considerable understanding in the use of developmentally appropriate teaching practices.	Candidates' lesson design and presentation will demonstrate exceptional understanding in the use of developmentally appropriate teaching practices.

Secondary TPE's for this Assignment

- TPE 2 – Monitoring Student Learning During Instruction
- TPE 5 – Student Engagement
- TPE 9 – Instructional Planning
- TPE 10 – Instructional Time
- TPE 11 – Social Environment

Mathematics Lesson Resources Assignment

EDMS 543

	Developing	Nearly Meets	Meets	Exceeds
TPE 4 Making Content Accessible	Candidates' resources and descriptions will demonstrate little to no understanding of how instructional resources can help provide all students with access to a balanced and comprehensive curriculum.	Candidates' resources and descriptions will demonstrate some understanding of how instructional resources can help provide all students with access to a balanced and comprehensive curriculum.	Candidates' resources and descriptions will demonstrate considerable understanding of how instructional resources can help provide all students with access to a balanced and comprehensive curriculum.	Candidates' resources and descriptions will demonstrate exceptional understanding of how instructional resources can help provide all students with access to a balanced and comprehensive curriculum.

Secondary TPE's for this Assignment

- TPE 1a – Subject-Specific Pedagogical Skills for MS Teaching Assignments (Teaching Mathematics in a MS Assignment)
- TPE 5 – Student Engagement

Student Interviews Assignment

EDMS 543

	Developing	Nearly Meets	Meets	Exceeds
TPE 1, 1a Subject Specific Pedagogical skills for MS Teaching Assignment (Teaching Mathematics in a Multiple Subject Assignment)	Candidate's assessment and recommendations from the student interview demonstrates little to no understanding of how to teach the state adopted academic content standard in mathematics	Candidate's assessment and recommendations from the student interview demonstrates some understanding of how to teach the state adopted academic content standard in mathematics	Candidate's assessment and recommendations from the student interview demonstrates considerable understanding of how to teach the state adopted academic content standard in mathematics	Candidate's assessment and recommendations from the student interview demonstrates exceptional understanding of how to teach the state adopted academic content standard in mathematics
TPE 2 Monitoring Student Learning During Instruction	Candidate's assessment and recommendations from the student interview demonstrates little to no understanding of how to monitor student learning and how to effectively make use of this information when teaching.	Candidate's assessment and recommendations from the student interview demonstrates some understanding of how to monitor student learning and how to effectively make use of this information when teaching.	Candidate's assessment and recommendations from the student interview demonstrates considerable understanding of how to monitor student learning and how to effectively make use of this information when teaching.	Candidate's assessment and recommendations from the student interview demonstrates exceptional understanding of how to monitor student learning and how to effectively make use of this information when teaching.
TPE 3 Interpretation and Use of Assessments	Candidate demonstrates little to no understanding of how to effectively assess students' content knowledge through the use of student interviews.	Candidate demonstrates some understanding of how to effectively assess students' content knowledge through the use of student interviews.	Candidate demonstrates considerable understanding of how to effectively assess students' content knowledge through the use of student interviews.	Candidate demonstrates exceptional understanding of how to effectively assess students' content knowledge through the use of student interviews.
TPE 4 Making Content Accessible	Candidate's recommendations from the student interview demonstrates little to no understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidate's recommendations from the student interview demonstrates some understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidate's recommendations from the student interview demonstrates considerable understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum	Candidate's recommendations from the student interview demonstrates exceptional understanding in the use of pedagogical strategies that will provide all students access to the mathematics curriculum

Secondary TPE's for this Assignment

- TPE 5 – Student Engagement
- TPE 6, 6a, 6b – Developmentally Appropriate Practices in Grades K-3 & Grades 4-8.
- TPE 8 – Learning about Students and TPE 9 – Instructional Planning

SB 2042 - AUTHORIZATION TO TEACH ENGLISH LEARNERS COMPETENCIES

PART 1: LANGUAGE STRUCTURE AND FIRST- AND SECOND-LANGUAGE DEVELOPMENT	PART 2: METHODOLOGY OF BILINGUAL, ENGLISH LANGUAGE DEVELOPMENT, AND CONTENT INSTRUCTION	PART 3: CULTURE AND CULTURAL DIVERSITY
I. Language Structure and Use: Universals and Differences (including the structure of English)	I. Theories and Methods of Bilingual Education	I. The Nature of Culture
A. The sound systems of language (phonology)	A. Foundations	A. Definitions of culture
B. Word formation (morphology)	B. Organizational models: What works for whom?	B. Perceptions of culture
C. Syntax	C. Instructional strategies	C. Intra-group differences (e.g., ethnicity, race, generations, and micro-cultures)
D. Word meaning (semantics)	II. Theories and Methods for Instruction In and Through English	D. Physical geography and its effects on culture
E. Language in context	A. Teacher delivery for <u>both</u> English language development <u>and</u> content instruction	E. Cultural congruence
F. Written discourse	B. Approaches with a focus on English language development	II. Manifestations of Culture: Learning About Students
G. Oral discourse	C. Approaches with a focus on content area instruction (specially designed academic instruction delivered in English)	A. What teachers should learn about their students
H. Nonverbal communication	D. Working with paraprofessionals	B. How teachers can learn about their students
I. Language Change		C. How teachers can use what they learn about their students (culturally responsive pedagogy)
II. Theories and Factors in First- and Second-Language Development	III. Language and Content Area Assessment	III. Cultural Contact
A. Historical and current theories and models of language analysis that have implications for second-language development and pedagogy	A. Purpose	A. Concepts of cultural contact
B. Psychological factors affecting first- and second-language development	B. Methods	B. Stages of individual cultural contact
C. Socio-cultural factors affecting first- and second-language development	C. State mandates	C. The dynamics of prejudice
D. Pedagogical factors affecting first- and second-language development	D. Limitations of assessment	D. Strategies for conflict resolution
E. Political factors affecting first- and second-language development	E. Technical concepts	IV. Cultural Diversity in U.S. and CA
		A. Historical perspectives
		B. Demography
		C. Migration and immigration

Lesson Design Format (TPA-Aligned)

Elements of the learning experience

Lesson Title: What is the title of your lesson?

Grade Level:

Content Area: *Mathematics*

Subject Matter: *Number Sense, Measurement and Geometry, Algebra and Functions, Statistics, Data Analysis and Probability, Mathematical Reasoning*

Time period for the learning experience *Example: two 30 minute sessions Science*

Learning Goals/Learning objectives for the learning experience:

State adopted content standards: *California Mathematics Content Standards*

Learning goals based on the content standards for students: *Write these in the form of what students will be able to do as a result of active engagement and learning in your lesson. Write in complete sentences. Use an action verb and explain how students will demonstrate their new knowledge and understanding. "The students will be able to _____" or "The students will demonstrate understanding of _____."*

Mathematical Concept(s): *What are you trying to teach? What big ideas are the focus of your lesson? Do not say, "The students will _____." (That is an objective, not a concept.)*

Class description

Type of class (self contained, subject specific), time of year, general background of students learning in relationship to new learning (challenges and prior learning)

English Learner: Beginning, intermediate, and advanced (use the ELD standards to determine the needs of each of these students).

Special education: one student with a learning disability(ies) and one with another special education identified disability

GATE student: identify the student's needs

Regular education: remaining students

Developmental needs of the students at this age

Give examples based on the different learning needs for K-3 and 4-6 students

Developmental age-appropriate skills and needs of the students

Engaging activities (hands on, etc)

Assessment Plan

Goals/objectives are assessed based on the content standards and learning goals

Type of assessment: Prior knowledge (pre assessment), Formative (progress monitoring), Summative (final product)

Feedback strategies: How students will be informed of specific successes and challenges and future activities to fill the individual student's gaps.

Reflection of the assessment: Strengths and weaknesses in relationship to the learning goal. Describe your alternative assessment based on the potential gaps in the students' learning.

Assessment Criteria

What criteria will you use to grade the assessment? How will you know if a student has successfully completed the assessment and accomplished the learning goals? What will they do to show you they have succeeded?

Materials

*What will the teacher need? What will the students need?
Review teacher’s manuals, pacing guides, and appropriate supplemental materials to determine the materials you will need to present this lesson. Materials should include lists of supplies that will be needed to present this lesson.*

Instructional strategies

1. Address the subject matter learning goals and developmental needs of the students described

Instructional strategies are what the teacher does during the instruction.

Student activities are what the students do during the lesson and independent practice.

INSTRUCTIONAL STRATEGIES	STUDENT ACTIVITIES
<p><i>Example: Put one instructional strategy in each box with an explanation and amount of time you are anticipating. Expand the number of boxes to match each strategy.</i></p>	<p><i>Example: Put one student activity to match the instructional strategy in each box with an explanation and amount of time you are anticipating. Expand the number of boxes to match each student activity.</i></p>
<p>ANTICIPATORY SET: <i>How will you focus/motivate students?</i></p> <p>TEACH TO THE OBJECTIVE: <i>How will you teach to the objective? How will you actively involve all students?</i></p> <p><i>Note: For a skill or task, describe and model the skill/task. For a concept, provide examples and non-examples.</i></p> <p>GUIDED PRACTICE: <i>How will you structure opportunities for the students to practice in class teacher monitoring (e.g., alone, with a partner, in cooperative groups). How will you “check for students’ understanding throughout the lesson?</i></p> <p>INDEPENDENT PRACTICE: <i>How will you structure opportunities for the students to practice outside of class following the lesson? How will you ensure that the independent practice is at the appropriate level of difficulty for the various students?</i></p>	<p>ANTICIPATORY SET</p> <p>TEACH TO THE OBJECTIVE</p> <p>GUIDED PRACTICE:</p> <p>INDEPENDENT PRACTICE:</p>
Instructional Strategy	Student Activity
Instructional Strategy	Student Activity
Instructional Strategy	Student Activity
Etc	Etc
Etc	Etc
Closure Strategy	Student Activity

Reflection: Explain why the instructional strategies, student activities and resources are appropriate for this lesson.

Why are the instructional strategies and student activities appropriate for this class based on content and student development?

How do they address the developmental needs of these students?

How do they help the students make progress toward achieving the state adopted academic content standards for students in this content area?

Understand connections between lesson content and the outside world.

Differentiated Instruction

Differentiated instruction based on the learning goals and instructional strategies: English Learners

TASKS	Beginning EL	Intermediate EL	Advanced EL
Identify one instructional strategy or student activity that could challenge the student.			
Describe how you would adapt the strategy or activity to meet the learning needs of the student considering subject matter pedagogy in your description.			
Explain how your adaptation would be effective for the student in making progress towards the goals of your lesson			

Differentiated instruction based on the learning goals and instructional strategies: Special Education

TASKS	LEARNING DISABILITY	GROUP SELECTED DISABILITY
Identify 1 instructional strategy or student activity from the plans that could be challenging for the student considering the description of your student		
Describe how you would adapt the strategy or activity to meet the needs of the student		
Explain how your adaption would be effective for the student making progress toward achieving the learning goal		

Differentiated instruction based on the learning goals and instructional strategies: GATE

TASKS	Describe GATE students needs:
Identify 1 instructional strategy or student activity from the plans that will be challenging for the student considering the description of your student	
Describe how you would adapt the strategy or activity to meet the needs of the student	
Explain how your adaption would be effective for helping the student make progress going beyond the learning goal	

Also include/attach at the end of the Lesson Design document:

Science Content Background: 1-2 pgs minimum summary of the mathematical content background***

Three (3) Applications to everyday life and explanations

A Resources List as indicated in the “Instructional Resources” Guidelines (course packet) will be turned in as a separate document.

*****NOTE:** To provide essential background information for the content aspect of the TPA-aligned Lesson Plan, at least one full page of text is required that communicates to the reader (for example, another teacher) what mathematical content a teacher must know in order to teach the lesson for understanding. That is, what content knowledge is necessary to be able to effectively teach the lesson for children’s mathematical understanding (a major focus of EDMS 543)? You may use your course text and any other resources that will help you with this task.

Tentative Course Schedule: Fall 2008

DATE	EDMS 543 COURSE TOPICS & ASSIGNMENTS (T)	READINGS (Text and Other Sources)
8/26/08	Course Introduction Why do we do mathematics? (Big picture) Conceptual vs. procedural knowledge Characteristics of Effective Classrooms: Overview of Instructional Practices Developing understanding—How do kids learn? Teaching through problem solving Introduction to Cognitively Guided Instruction (CGI)	1- Teaching Mathematics in the Era of the NCTM Standards 2 - Exploring What It Means to do Mathematics 3 - Developing Understanding in Mathematics 4 -Teaching Through Problem Solving
9/02/08	- Interviews - Assessment – Connecting instruction to assessment - How kids learn through problem solving development	5 - Planning in the Problem- Based Classroom 6 - Building Assessment into Instruction
***	- Mathematics Content Standards for California Public Schools Group presentations of assigned standards	This document is available on: http://www.cde.ca.gov/ci/ma/cf/index.asp
9/09/08	Special Populations: Creating Inclusive Mathematics Classrooms Multiple Representations: Reaching every learner Article summary/critique on Math and Special Populations due Number Sense I: What it means and how we can help children develop it. PRACTICE INTERVIEW DUE	7 - Teaching Mathematics Equitably to All Children Journal article on math & special needs 9 - Developing Early Number Concepts and Number Sense
9/16/08	Number Sense II: Classification of word problems for addition, subtraction, multiplication, and division. How all children can construct efficient mental tools for fact mastery. Number Sense III: Developing understanding of place value Place Value Interview due	10 - Developing Meanings for the Operations 11 - Helping Children Master the Basic Facts 12 - Whole-Number Place-Value Development
9/23/08	Number Sense IV: Developing flexible methods of computation, mental strategies, and estimation. Building estimation skills ***1 Add/Subtraction OR Multiplication/Division classroom presentation (Number Sense) Addition/Subtraction OR Multiplication/Division interview due (turn in only one interview) Algebraic Reasoning and Function – Exploring patterns, variables, and equations. Developing function concepts. ***2 Algebra classroom presentation Algebra interview due	13 - Strategies for Whole Number Computation 14 – Computational Estimation with Whole Numbers 15 - Algebraic Thinking: Generalizations, Patterns, and Functions 24 – Developing Concepts of Exponents, Integers, and Real Numbers
9/30/08	Fractions I: Constructing understanding of fractions; fraction computation ***3 Fraction classroom presentation #1 (grades K-4 lesson choice) Fractions interview due Fractions II: ***4 Fraction classroom presentation #2 (grades 5-8 lesson choice)	16 - Developing Fraction Concepts 17 - Computation with Fractions 18 – Decimal & Percent Concepts and Decimal Computation 19 – Proportional Reasoning
10/07/08	Measurement - Customary and metric system ***5 Measurement classroom presentation Measurement interview due Geometry – Developing geometric reasoning and spatial sense ***6 Geometry classroom presentation Geometry interview due	20 - Developing Measurement Concepts 21 - Geometric Thinking and Geometric Concepts
10/14/08	Probability & Data Analysis – Developing meaningful experiences in gathering and displaying statistical data. Exploring concepts of chance, simple and independent events. ***7 Probability & Data Analysis classroom presentation Probability & Data Analysis interview due Year-long curriculum plan due (4 units) ASSIGNMENT: Last day to turn in. Unit Presentations by teams.	22 - Concepts of Data Analysis 23 – Exploring Concepts of Probability Post 4 Science Unit Plans to WebCT—One team member posts all four units as a yearly plan with a coversheet
	Technology – This competency will be infused throughout the course. Use this chapter as an ongoing reference.	8 – Technology and School Mathematics