



<b>Course &amp; Section Nos.</b>	<b>EDMS 543 (04)</b>
<b>Course Title</b>	<b>Elementary Mathematics Education</b>
<b>Class Roster No.</b>	<b>42740</b>
<b>Course Day(s)</b>	<b>Monday</b>
<b>Time</b>	<b>8:30 AM-11:20 AM</b>
<b>Course Location</b>	<b>Online Synchronous</b>
<b>Semester / Year</b>	<b>Fall 2020</b>
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### SCHOOL OF EDUCATION MISSION & VISION STATEMENT

*(Adopted by SOE Governance Community, January 2013)*

#### ***Vision***

To serve the educational needs of local, regional, and global communities, the School of Education advances innovative practice and leadership by generating, embracing, and promoting equitable and creative solutions.

#### ***Mission***

The mission of the School of Education community is to collaboratively transform education. We:

- Create community through partnerships
- Promote and foster social justice and educational equity
- Advance innovative, student-centered practices
- Inspire reflective teaching and learning
- Conduct purposeful research
- Serve the School, College, University, and Community

### BASIC TENETS OF OUR CONCEPTUAL FRAMEWORK

- Student centered education
- Research and theory specific to the program field inform practice
- Connections and links between coursework and application
- Strong engagement between faculty and candidates
- Co-teaching clinical practice
- Culturally responsive pedagogy and socially just outcomes

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## COURSE DESCRIPTION

Focuses on curriculum development, methods, techniques, materials, planning, organization, and assessment in various elementary school curricula, and curriculum integration in mathematics. Methods of cross-cultural language and academic development will be integrated into the course. Requires participation/observation in the public schools. - Catalog description

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 best practices in mathematics education, (c) develop a familiarity with the California mathematics and Common Core State 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 Instructor

<http://catalog.csusm.edu/>

### Course Prerequisites

Admission to the Multiple Subject Credential Program

### Course Objectives

The course objectives are fourfold:

- To develop and demonstrate understanding of theory, methodology, and assessment of mathematics in integrated and inclusive elementary classrooms in alignment with the *California Common Core State Standards - Mathematics*.
- To provide a comprehensive overview of the objectives, skills, concepts, materials, methods, technology, and dispositions necessary to teach mathematics to elementary school children
- To demonstrate competence in instructional methods, techniques, lesson planning, curriculum development, organization and assessment in mathematics education.
- To learn to teach mathematics through a student-centered, inquiry-based approach to learning with attention to meeting the academic needs of all students.

### Unique Course Requirements

Access (online) to elementary students for mathematics teaching practice and for observations

## REQUIRED TEXTS, MATERIALS AND/OR ACCOUNTS

### Required Course Text

Van De Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2013). *Elementary and middle school mathematics: Teaching developmentally* (8th ed). Boston: Pearson. ISBN: 978-0-13-261226-5

*The weekly course readings are found in the Course Schedule at the end of this syllabus.*

Web site for Blackline Masters suggested in the course text:

[http://wps.ablongman.com/ab\\_vandewalle\\_math\\_6/54/13858/3547876.cw/index.html](http://wps.ablongman.com/ab_vandewalle_math_6/54/13858/3547876.cw/index.html)

### Required Course Resources\*\*

California Department of Education (2010). *California's Common Core State Standards for Mathematics*. Sacramento. CDE: Author

<http://www.cde.ca.gov/be/st/ss/documents/ccsmathstandarAug2013.pdf>

California Department of Education (2013). *Draft mathematics framework for California public schools, kindergarten through grade twelve*. Sacramento, CA: Author.

<http://www.cde.ca.gov/ci/ma/cf/draft2mathfwchapters.asp>

You are required to access the following Web sites for this course. They provide interactive resources for you to use in your math curriculum planning

National Council of Teachers of Mathematics (NCTM): <http://www.nctm.org/Standards-and-Positions/Principles-and-Standards/>

Illuminations Lessons: <http://illuminations.nctm.org/Lessons-Activities.aspx>

Illuminations: <http://illuminations.nctm.org/Search.aspx?view=search&type=ac>

Interactives: <http://www.nctm.org/Classroom-Resources/Interactives/>

\*\* If the hyperlinks do not open a document, copy and paste the URL into a browser.

*Other handouts (assignments guidelines and rubrics) and resources will be distributed in class and through the Moodle course site.*

### **Cougar Courses**

Cougar Courses is used for assignment guidelines and rubrics, course resources, and for assignments submission.

## **COURSE LEARNING OUTCOMES**

The following learning outcomes will be accomplished as a result of successful completion of the course:

1. Using differentiated reading response formats, teacher candidates will demonstrate ongoing evidence of good depth of understanding and application to the classroom of elementary mathematics content from weekly assigned readings and/or responses to prompts provided by the instructor related to assigned readings and/or current issues in mathematics.
2. Using the pedagogical content knowledge that is being learned in the course, teacher candidates will provide evidence of their ability to use inquiry for assessment purposes by focusing on students' thinking about mathematics to better understand elementary level students with different understandings.
3. Candidates will learn how to actively observe and identify the various teaching strategies, curriculum elements, and student behaviors associated with instructional routines, content routines, and learning routines, and demonstrate understanding of how these relate to student achievement
4. 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 student-centered mathematical lesson plan activity that is: reform-minded, hands-on, cognitively challenging, contains differentiated instruction, and focuses on students' mathematical thinking.
5. By engaging in problem-solving contexts and assessing student problem solving, candidates will learn about, identify, and select quality-learning experiences for all children that promote mathematical inquiry and conceptual development.
6. Candidates will demonstrate understanding and application of the Common Core State Standards for Mathematics and the varieties of expertise that mathematics educators at all levels should seek to develop in all their students including English Learners, struggling learners, and learners with special needs.
7. Teacher candidates will participate in coursework that leads to preparation for engaging in and completing Teaching Performance Expectations (TPEs) tasks and Cal TPA assessment tasks.

## **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. Candidates successfully completing this program receive a credential with authorization to teach English learners. *(Approved by CCTC in SB 2042 Program Standards, August 02)*

## **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. You will be required to formally address the following TPEs in this course:

### **TPE1. Engaging and Supporting All Students in Learning. Beginning teachers:**

- 1.1 Apply knowledge of students, including their prior experiences, interests, and social-emotional learning needs, as well as their funds of knowledge and cultural, language, and socioeconomic backgrounds, to engage them in learning.
- 1.3 Connect subject matter to real-life contexts and provide active learning experiences to engage student interest, support student motivation, and allow students to extend their learning.
- 1.5 Promote students' critical and creative thinking and analysis through activities that provide opportunities for inquiry, problem solving, responding to and framing meaningful questions, and reflection.
- 1.8 Monitor student learning and adjust instruction while teaching so that students continue to be actively engaged in learning

### **TPE 2: Creating and Maintaining Effective Environments for Student Learning. Beginning teachers:**

- 2.5 Maintain high expectations for learning with appropriate support for the full range of students in the classroom.
- 2.6 Establish and maintain clear expectations for positive classroom behavior and for student-to-student and student-to-teacher interactions by communicating classroom behavior and for student-to-student and student-to-teacher interactions by communicating classroom routines, procedures, and norms to students and families.

### **TPE 3: Understanding and Organizing Subject Matter for Student Learning. Beginning teachers:**

- 3.1 Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks.
- 3.2 Use knowledge about students and learning goals to organize the curriculum to facilitate student understanding of subject matter, and make accommodations and/or modifications as needed to promote student access to the curriculum
- 3.3 Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences, including integrating the visual and performing arts as applicable to the discipline. (See Subject- Specific Pedagogical Skills in Section 2 for reference)
- 3.4 Individually and through consultation and collaboration with other educators and members of the larger school community, plan for effective subject matter instruction and use multiple means of representing, expressing, and engaging students to demonstrate their knowledge.
- 3.5 Adapt subject matter curriculum, organization, and planning to support the acquisition and use of academic language within learning activities to promote the subject matter knowledge of all students, including the full range of English learners, Standard English learners, students with disabilities, and students with other learning needs in the least restrictive environment.
- 3.6 Use and adapt resources, standards-aligned instructional materials, and a range of technology, including assistive technology, to facilitate students' equitable access to the curriculum.
- 3.8 Demonstrate knowledge of effective teaching strategies aligned with the internationally recognized educational technology standards.

### **TPE 4: Planning Instruction and Designing Learning Experiences for All Students. Beginning teachers:**

- 4.1 Locate and apply information about students' current academic status, content- and standards-related

learning needs and goals, assessment data, language proficiency status, and cultural background for both short-term and long-term instructional planning purposes.

4.3 Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy, mathematics, science, and other disciplines across the curriculum, as applicable to the subject area of instruction.

4.4 Plan, design, implement and monitor instruction, making effective use of instructional time to maximize learning opportunities and provide access to the curriculum for all students by removing barriers and providing access through instructional strategies that include:

- appropriate use of instructional technology, including assistive technology;
- applying principles of UDL and MTSS;
- use of developmentally, linguistically, and culturally appropriate learning activities, instructional materials, and resources for all students, including the full range of English learners;
- \* appropriate modifications for students with disabilities in the general education classroom;
- opportunities for students to support each other in learning; and
- use of community resources and services as applicable

4.7 Plan instruction that promotes a range of communication strategies and activity modes between teacher and student and among students that encourage student participation in learning.

#### **TPE 5: Assessing Student Learning. Beginning teachers:**

5.1 Apply knowledge of the purposes, characteristics, and appropriate uses of different types of assessments (e.g., diagnostic, informal, formal, progress-monitoring, formative, summative, and performance) to design and administer classroom assessments, including use of scoring rubrics.

5.2 Collect and analyze assessment data from multiple measures and sources to plan and modify instruction and document students' learning over time.

5.3 Involve all students in self-assessment and reflection on their learning goals and progress and provide students with opportunities to revise or reframe their work based on assessment feedback.

5.4 Use technology as appropriate to support assessment administration, conduct data analysis, and communicate learning outcomes to students and families.

5.5 Use assessment information in a timely manner to assist students and families in understanding student progress in meeting learning goals.

#### **TPE 6: Developing as a Professional Educator. Beginning teachers:**

6.1 Reflect on their own teaching practice and level of subject matter and pedagogical knowledge to plan and implement instruction that can improve student learning.

### **Teacher Performance Assessment**

Beginning July 1, 2008 all California credential candidates must successfully complete a state-approved Teacher Performance Assessment (TPA), as part of the credential program of preparation. During the 2018-19 academic year the CSUSM credential programs will use the CalTPA (California Teacher Performance Assessment)

#### **CalTPA**

To assist with your successful completion of the CalTPA, 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. The CalTPA Candidate Handbook, TPA seminar schedule, and other TPA support materials may be found on this website:

[https://www.ctcexams.nesinc.com/TestView.aspx?f=HTML\\_FRAG/CalTPA\\_TestPage.html](https://www.ctcexams.nesinc.com/TestView.aspx?f=HTML_FRAG/CalTPA_TestPage.html)

Additionally, to support your success in your credential program and with TPA, SOE classes use common pedagogical language, lesson plans (lesson designs), and unit plans (unit designs).

### **Expected Dispositions for the Education Profession**

Education is a profession that has, at its core, certain dispositional attributes that must be acquired and developed. Teaching and working with learners of all ages requires not only specific content knowledge and pedagogical skills, but positive attitudes about multiple dimensions of the profession. The School of Education has identified six dispositions that must be evident in teacher candidates: social justice and equity, collaboration, critical thinking, professional ethics, reflective teaching and learning, and life-long learning. These dispositions have observable actions that will be assessed throughout the preparation program. For each dispositional element, there are three levels of performance - *unacceptable*, *initial target*, and *advanced target*. The

description and rubric for the three levels of performance offer measurable behaviors and examples.

The assessment is designed to provide candidates with ongoing feedback for their growth in professional dispositions and includes a self-assessment by the candidate. The dispositions and rubric are presented, explained and assessed in one or more designated courses in each program as well as in clinical practice. Based upon assessment feedback candidates will compose a reflection that becomes part of the candidate's Teaching Performance Expectation portfolio. Candidates are expected to meet the level of *initial target* during the program.

### **PROGRAM STUDENT LEARNING OUTCOMES (PSLOs)**

The Teacher Performance Expectation Competencies, the Teacher Performance Assessment, and the Assessment of Professional Dispositions provide the program student learning outcomes for the Multiple Subject Credential Program.

## COURSE REQUIREMENTS AND GRADED COURSE COMPONENTS

### Assignments Tied to Course Learning Outcomes

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 will not be accepted, unless extenuating circumstances can be properly substantiated. Prepare carefully for class, be ready to discuss readings and assignments thoughtfully, and actively participate in all class activities. Note the Description of Exemplary Students in the **Grading Standards section** of this syllabus.

	<u>Assignment Possible Points</u>	<u>Total % of Course</u>
1. Active Participation and Collaboration (all or nothing credit given)	5 pts.	5%
2. Math Book Club: Reading Accountability based on differentiated responses. Also, online forums, reflections, and other class activities	60 pts.	15%
3. Math Classroom Observations	200 pts	25%
4. Mathematics Learning Activity and Implementation	20 pts.	25%
5. Problem-Based 3-Part Mathematics Lesson Plan	25 pts.	30%
6. Course Readings Related to Assignments	embedded	embedded

### 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 are provided in the syllabus and on Cougar Courses.*

#### **1. Active Participation and Collaboration (5%) - Individual**

Defined as actively engaging and contributing in all class discussions and activities, this course is designed to provide ample opportunities for your participation. You are expected to actively participate in discussions, group work, presentations, and hands-on activities throughout the course. A positive professional disposition includes a willingness to consider and discuss new ideas objectively and to exhibit curiosity, perseverance and seriousness about improving oneself as a teacher. All students are expected to exhibit professional behavior and demeanor at all times. Each of you are expected to be present at every class or activity, to be on time, to not leave class early, and to actively participate and have meaningful and engaging conversations. All or nothing credit is given for this course component.

#### **2. Reading Accountability/Book Club: Demonstrating Evidence of Understanding (15%) – Individual**

Each week students will:

- Choose one chapter each week from the assigned readings and provide evidence of having read and understood the content of the chosen chapter. You may choose to demonstrate your knowledge of **ALL** the Big Ideas contained in the reading by preparing a graphic organizer, a concept map, a bulleted list, drawings, or another method of your choice. The complete list of choices is located in a Moodle course folder to be highlighted by the course instructor. Note: regardless of which method you choose to represent your learning, **ALL** key concepts in the reading must be represented. You will also be part of a **Book Club** group in this course where you will share your learning with your group peers.
- Reflection papers will also be related to self-assessment and other course-related activities and assignments designed for students to demonstrate their understanding of the text and other readings per the instructor's guidelines.

#### **3. Math Classroom Observations (25%) - Individual**



Teaching Performance Expectations addressed in the assignment:

2.5 Maintain high expectations for learning with appropriate support for the full range of students in the classroom. **(Practiced)**

5.2 Collect and analyze assessment data from multiple measures and sources to plan and modify instruction and document students' learning over time. **(Practiced and Assessed)**

What do we hope to see and hear when we step into a math classroom? As the focus has shifted from memorizing to understanding and from calculating to applying, educators have recognized instructional strategies that are better suited to these goals. As we observe math classrooms, we look for evidence that teaching is more than delivering a textbook lesson. We look at the interactions between teacher and students, the on-the-spot decisions made by the teacher to keep learning progressing, and the ways in which the teacher brings math ideas to light through talk, visuals, and making connections to past learning. More specifically, here are some key features we would hope to see in an effective math classroom.

1. Look for a clear focus on math standards (CA Common Core-Math).
2. Look for students actively engaged in learning.
3. Look for deep and focused teacher questioning.
4. Look for communication about math ideas.
5. Look for posing and solving problems as an integral part of math instruction.
6. Look for a focus on building understanding.
7. Look for varied representations of math thinking.
8. Look for assessment as an integral part of instruction.
9. Look for attention to the needs of diverse students.

You will conduct **two** different observations of students engaged in mathematics learning in an elementary classroom during your Clinical Practice while you are in this course. There is a template that you will complete with specific prompts. More information and details will be provided by the instructor.

### Math Classroom Observations Rubric

Observed Mathematical Behavior	Excellent!	Well Done!	Needs Work
	3	2	1
<b>Worthwhile Task</b>	All prompts are well developed and reflect strong evidence statements to support that the observed lesson consisted of a worthwhile task.	Most prompts are well developed and reflect appropriate evidence statements to support that the observed lesson consisted of a worthwhile task	Some prompts are not addressed with evidence statements or evidence statements are weak with respect to a worthwhile task
<b>Students' Problem Solving</b>	All prompts are well developed and reflect strong evidence statements to support that the observed lesson consisted of students engaging in problem solving.	Most prompts are well developed and reflect appropriate evidence statements to support that the observed lesson consisted of students engaging in problem solving	Some prompts are not addressed with evidence statements or evidence statements are weak with respect to students engaging in problem solving
<b>Tools for Discourse &amp; Communication</b>	All prompts are well developed and reflect strong evidence statements to support that the observed lesson provided students with tools for	Most prompts are well developed and reflect appropriate evidence statements to support that the observed lesson provided students with tools for	Some prompts are not addressed with evidence statements or evidence statements are weak with respect to providing students with tools for

	discourse and communication.	discourse and communication.	discourse and communication.
<b>Classroom Culture</b>	All prompts are well developed and reflect strong evidence statements to support that the observed lesson provided students with an inclusive, respectful classroom culture.	Most prompts are well developed and reflect appropriate evidence statements to support that the observed lesson provided students with an inclusive, respectful classroom culture.	Some prompts are not addressed with evidence statements or evidence statements are weak with respect to the observed lesson providing students with an inclusive, respectful classroom culture.
<b>Candidate's Personal Reflection</b>	The reflection is thoughtful, insightful, and, appropriately describes what was observed	The reflection is thoughtful, insightful, and, appropriately describes what was observed	The reflection is cursory and does not reflect insightful thoughts on the observed lesson

Total Points. /15 X .25 = \_\_\_\_\_ of final course grade

#### 4. Mathematics Learning Activity (25%) – Individual

The following Teaching Performance Expectation is addressed in this assignment:

3.8 Demonstrate knowledge of effective teaching strategies aligned with the internationally recognized educational technology standards. **(Practiced)**

The purpose of this assignment is to provide you with opportunities to (1) experience teaching a math activity in a small group setting, (2) practice questioning skills and strategies to engage all students, (3) reflect on student learning and adjust teaching accordingly.

You will be assigned to a group of 3 class members, and the group will choose a specific chapter in the course text as well decide **which grade level each member** will concentrate on. **Each member** will select **one** activity from the chapter to teach to small groups in our class in the form of a learning center. Choose activities that help the class understand the big ideas in the chapter and that demonstrate various instructional strategies.

On the day of presentation to your peers (10%), each individual activity should take about 10 minutes. If the activity in the text is too short or too long, you need to adapt it to fit the timeframe. The activity should be planned and/or adapted to show evidence of higher-order thinking and conceptual understanding. Your goal is to engage your peer teacher candidates in advancing their understanding of the key ideas, frameworks, and effective teaching strategies in the chapters.

**A detailed write-up of the activity** – Your MLA should be written into the Lesson Sketch Template provided by the instructor on the first page of your Cougar Course. Please be sure to include all the listed requirements. Post your Lesson Sketch Template to the appropriate forum link on Cougar Courses where all of your cohorts' MLAs will be available for your future teaching.

On the class session your MLA is due (TBA), you will present your activity to the class. Since we cannot interact with the lesson as you would if we were face to face, you will present a Google slides, PowerPoint, or video presentation of your activity. Your presentation should highlight the activity as well as all materials needed for students to engage in your lesson. Be prepared for questions from your peers after you present. More details will be given in our class.

This assignment has two additional component and will be completed with your group members:

1. Chapter Presentation: Your group will put together a *5-minute* PPT **overview** on the chapter, highlighting instructional strategies, models, sample types of problems, and the features that you will be

demonstrating in your learning center activities. Give an **overview** presentation—do not present every piece of information. You must adhere to your 5-minute time limit!

2. Each candidate will write a one-page reflection on the experience of creating and teaching your MLA online. The reflection should describe your perception of the effectiveness of your individual math activity. In what ways did you make content accessible? What evidence do you have that your content was accessible to all learners? What do you think worked well, and what didn't work well (student engagement)? In what ways would you modify the activity and why? **(5%)**.

### **5. Problem-Based 3-Part Mathematics Lesson Plan (30%) – In pairs**

The purpose of this assignment is to help you learn how to design effective problem-based mathematical activities and lessons and to provide an opportunity for you to practice teaching mathematics. Working in pairs, you will design one **student-centered**, standards-based lesson (approximately 25-30 minutes in length) that you will present in your cohort class according to the course schedule of topics located in this syllabus. Please avoid teacher directed lessons (lecture style). Presentations to peers should be no more than 10 minutes in length.

In your lesson, you must focus on problem-based activities, and the lesson must be differentiated. Your lesson activity must be reform-minded, hands-on, cognitively challenging, contain differentiated instruction, focus on students' mathematical thinking, AND provide the opportunity for you to gather evidence of student learning (i.e., student work that you can assess) if you were to implement the lesson in a practicum classroom. Ensure that your lesson design is based on problem-solving strategies and **not** on procedural mechanics or math "worksheets". Use your learning in the credential courses you are taking concurrently with this course (for example, English Language Development standards and proficiency levels, literacy standards, student groupings, differentiated content and assessment, etc.). Please consider the importance of this assignment to prepare you for CalTPA lesson planning.

**NOTE: NO Bingo games, candy manipulatives, or lecture format for your lesson activity!** However, your lesson may be a mathematical game that focuses on developing conceptual understanding. More specific details and guidelines will be given in class. The lesson plan template will be provided on your Cougar Course and at the end of this syllabus.

The following TPEs are addressed in this assignment:

TPE 2.5 Maintain high expectations for learning with appropriate support for the full range of students in the classroom. **(Assessed)**

3.8 Demonstrate knowledge of effective teaching strategies aligned with the internationally recognized educational technology standards. **(Assessed)**

4.3 Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy, mathematics, science, and other disciplines across the curriculum, as applicable to the subject area of instruction. **(Assessed)**

4.7 Plan instruction that promotes a range of communication strategies and activity modes between teacher and student and among students that encourage student participation in learning. **(Assessed)**

5.3 Involve all students in self-assessment and reflection on their learning goals and progress and provide students with opportunities to revise or reframe their work based on assessment feedback. **(Assessed)**

5.4 Use technology as appropriate to support assessment administration, conduct data analysis, and communicate learning outcomes to students and families. **(Assessed)**

**GRADING RUBRIC FOR PROBLEM-BASED 3-PART MATHEMATICS LESSON PLAN: EDMS/EDMX 543**

**Students:**

**Math Topic:**

**Grade Level:**

**Lesson Title:**

<b>CRITERIA</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Preliminary Information: CA Common Core State Standards -Math & Mathematical Practices; content objectives; ELD standards and objectives; and academic language are listed and adhered to.	CA Common Core State Standards -Math & Mathematical Practices; content objectives; ELD standards and objectives; and academic language are listed and adhered to.in significant depth.	CA Common Core State Standards-Math & Mathematical Practices; content objectives; ELD standards and objectives; and academic language are listed and adhered to in good depth.	CA Common Core State Standards - Math & Mathematical Practices; content objectives; ELD standards and objectives; and academic language are listed and adhered to in acceptable depth.	Only one preliminary information element is missing, and the elements listed are adhered to in some depth	There is more than one missing preliminary information element <b>OR</b> Poorly detailed preliminary information is provided that does not reflect careful planning and forethought.
Assessment: The lesson plan includes appropriate student success criteria; informal and formal assessment of content; formal and informal assessment of language; and a student self-assessment plan	Appropriate student success criteria; informal and formal assessment of content; formal and informal assessment of language; and a student self-assessment plan are all developed in significant depth.	Appropriate student success criteria; informal and formal assessment of content; formal and informal assessment of language; and a student self-assessment plan are all developed in good depth.	Appropriate student success criteria; informal and formal assessment of content; formal and informal assessment of language; and a student self-assessment plan are all developed in acceptable depth.	No more than one assessment element is missing. The other elements listed are connected to the lesson in some depth.	There is more than one missing assessment element <b>OR</b> A poorly detailed assessment plan is provided that overall does not reflect careful planning and forethought.
Differentiation: Content and assessment differentiation based on English Learners' proficiency levels; students with special needs; and GATE/accelerated learners	Content and assessment differentiation based on English Learners' proficiency levels; students with special needs; and GATE/accelerated learners are developed in significant depth.	Content and assessment differentiation based on English Learners' proficiency levels; students with special needs; and GATE/accelerated learners are developed in good depth.	Content and assessment differentiation based on English Learners' proficiency levels; students with special needs; and GATE/accelerated learners are developed in acceptable depth.	Content and/or assessment differentiation are missing for one population: English Learners or students with special needs or GATE/accelerated learners. Differentiation for the other populations is developed in some depth	Content and/or assessment differentiation are missing for more than one population: English Learners or students with special needs; or GATE/accelerated learners. <b>OR</b> the differentiation plan is overall poorly developed
Lesson Activities: Phases of the 3-Part Lesson Plan Launch Explore Summary	Launch, Explore, and Summary phases of the lesson are described and developed in the lesson plan in significant depth.	Launch, Explore, and Summary phases of the lesson are described and developed in the lesson plan in good depth.	Launch, Explore, and Summary phases of the lesson are described and developed in the lesson plan in acceptable depth.	Instructional strategies and activities related to <u>one</u> of Launch, Explore, and Summary components are not well developed.	Launch, Explore, Summary activity components and instructional strategies are overall poorly developed.
Lesson focus: student problem solving, conceptual development,	The lesson reflects teaching methods focusing on student problem solving,	The lesson reflects teaching methods focusing on student problem solving,	The lesson reflects teaching methods focusing on student problem solving,	The lesson somewhat reflects teaching methods focusing on student	The lesson does not reflect teaching methods focusing on student problem

relational learning and opportunities for making connections to real world experiences.	conceptual development, relational learning and opportunities for making connections to real world experiences in significant depth.	conceptual development, relational learning and opportunities for making connections to real world experiences in good depth.	conceptual development, relational learning and opportunities for making connections to real world experiences in acceptable depth.	problem solving, conceptual development, relational learning and opportunities for making connections to real world experiences.	solving, conceptual development, relational learning and opportunities for making connections to real world experiences to any significant degree.
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**TOTAL SCORE:**    /25    x    .25    **GRADE:**    \_\_\_\_\_

## 6. Course Readings and Resources

To support pedagogical professional development, the following TPEs are addressed in the readings and resources:

1. TPE 2.5 Maintain high expectations for learning with appropriate support for the full range of students in the classroom. **(Introduced)**  
Education Week Spotlight (2016). Growth Mindset
2. TPE 3.8 Demonstrate knowledge of effective teaching strategies aligned with the internationally recognized educational technology standards. **(Introduced)**  
USDE. (2017, January). Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update. Section 4: Assessment—Measuring for Learning. pp. 55-67
3. TPE 5.2 Collect and analyze assessment data from multiple measures and sources to plan and modify instruction and document students' learning over time. **(Introduced)**  
“Assessment Types and Purposes” – Instructor customized reading
4. TPE 5.3 Involve all students in self-assessment and reflection on their learning goals and progress and provide students with opportunities to revise or reframe their work based on assessment feedback. **(Introduced and Practiced)**  
  
Center for Responsive Schools, Inc. (2018). Self-Assessment: Students as Active Learners. Self-Assessment Tools. (Introduced)  
  
Teaching Students Self-Assessment-Formative Assessment Guidelines –  
[https://www.oregon.gov/ode/educator-resources/assessment/Documents/teaching\\_students\\_self-assessment.pdf](https://www.oregon.gov/ode/educator-resources/assessment/Documents/teaching_students_self-assessment.pdf)
5. TPE 5.4 Use technology as appropriate to support assessment administration, conduct data analysis, and communicate learning outcomes to students and families. **(Introduced)**  
  
USDE. (2017, January). Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update. Section 4: Assessment—Measuring for Learning. pp. 55-67  
  
Mathematics Assessment Resource **(Practiced)**  
IXL  
[ixl.com/?partner=google&campaign=71589448&adGroup=2429439088&gclid=Cj0KCQjwhtT1BRCiARIsAGIY51J7QS1zeXNh3fxYLSWIX1Rubt6tfpSimIXFeSR0IMz74lu52hBVewEaAqBeEALw\\_wcB](http://ixl.com/?partner=google&campaign=71589448&adGroup=2429439088&gclid=Cj0KCQjwhtT1BRCiARIsAGIY51J7QS1zeXNh3fxYLSWIX1Rubt6tfpSimIXFeSR0IMz74lu52hBVewEaAqBeEALw_wcB)  
  
<https://www.ixl.com/resources/at-home-learning>

## Grading Standards

Total percentage of the course for each assignment is indicated in the list of assignments and in the assignment descriptions.

## Final Grade Scale

A = 93-100	B = 83-86	C = 73-76	F = 0-59
A- = 90-92	B- = 80-82	C- = 70-72	
B+ = 87-89	C+ = 77-79	D = 60-69	

It is expected that students will proofread and edit all their assignments prior to submission. Students will ensure that the text is error-free (grammar, spelling), and ideas are logically and concisely presented. The assignment's grade will be negatively affected as a result of this oversight. Each assignment will be graded

approximately 80% on content and context (detail, logic, synthesis of information, depth of analysis, etc.), and 20% on mechanics. All reference/resource citations should use appropriate citation form. Please consult with the American Psychological Association (APA) format in the APA Manual, 5<sup>th</sup> edition for citation guidance.

**NOTE:** You must maintain a B average (3.0 GPA) in your teacher education courses to receive a teaching credential from the State of California. Courses are not accepted if final course grades are below a C+.

### **Exemplary “A” Students**

1. 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.
2. Complete all assignments thoroughly, thoughtfully and timely.
3. Make insightful connections between assignments and their developing overall understanding of science concepts; continually questioning and examining assumptions in a genuine spirit of inquiry.
4. Attends every class, always timely, and shows high level achievement of course goals.
5. Display a “can do” attitude, give 100%, and works to help others learn too.
6. Contributes a great deal to class environment, showing respect and concern for all members.

### **“B” Students**

1. Completes all assignments, all on time, and demonstrates the ability to summarize, analyze, and/or reflect at fairly high levels, showing consistent improvement over time.
2. Completes all of the reading assignments and develops thoughtful and fairly thorough responses.
3. Produces work that is close to professional level in terms of both content and writing, working to develop a strong command of writing, speaking, planning and presenting.
4. Develops presentations demonstrating significant learning.
5. Presents confidently and intelligently, demonstrating effective teaching skills.
6. Attends every class meeting and is regularly engaged during class.
7. Contributes to the positive environment of the class by respecting all members.

*It is expected that students will proofread and edit all their assignments prior to submission. Students will ensure that the text is error-free (grammar, spelling), and ideas are logically and concisely presented. The assignment's grade will be negatively affected as a result of this oversight. Each assignment will be graded approximately 80% on content and context (detail, logic, synthesis of information, depth of analysis, etc.), and 20% on mechanics. All reference/resource citations should use appropriate citation form. Please consult with the American Psychological Association (APA) format in the APA Manual, 6<sup>th</sup> edition for citation guidance.*

### **Final Exam Statement**

There is no final exam in this course.

### **School of Education/Course Attendance Policy**

Due to the dynamic and interactive nature of courses in the School of Education, all candidates (course participants) are expected to attend all classes and participate actively. At a minimum, candidates (course participants) 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 candidate (course participants) 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 are absent 2 class sessions, your highest possible grade is a “B”.** **If you are absent 2 class sessions, your highest possible grade is a “C+”.** **Late arrivals and early departures** will lower your course grade. For every two times that you are late and/or leave early, your course grade will be lowered by one letter grade. If you have an emergency, or very extenuating circumstances, please see the instructor to make arrangements accordingly. Absences do not change assignment due dates. If you find that you cannot attend class due to an emergency or very extenuating circumstances, please email any due

assignments by the start of the class session it is due. **NOTE:** With few exceptions, late assignments will not be accepted.

As part of their learning experiences in alignment with CTC Teaching Performance Expectations, this course may require teacher candidates to participate in school/school district community events that are held outside of regular credential coursework hours.

### **Policy on Late/Missed Work**

Due to the interactive nature of the course and assignments that require timely preparation and planning, with very few exceptions, late assignments will not be accepted. Please contact the course instructor if there are extenuating circumstances that impede the completion of a course assignment by the DUE date.

### **Student Collaboration Policy**

Candidates will be required to work collaboratively on selected assignments and projects with classroom peers. The expectation for such collaborations is that each candidate will contribute equitably to the process and final product.

## **GENERAL CONSIDERATIONS**

### **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 assignments must be original work, clear and error-free. All ideas/material 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 accordingly.

Academic Honesty and Integrity: Students are responsible for honest completion and representation of their work. Your course catalog details the ethical standards and penalties for infractions. There will be zero 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.

Refer to the full Academic Honesty Policy at:

[http://www.csusm.edu/policies/active/documents/Academic\\_Honesty\\_Policy.html](http://www.csusm.edu/policies/active/documents/Academic_Honesty_Policy.html)

### **Plagiarism**

As an educator, it is expected that each candidate (course participant) 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 <https://biblio.csusm.edu/capsules/plagiarism-general> If there are questions about academic honesty, please consult the University catalog.

### **Students with Disabilities Requiring Reasonable Accommodations**

Students with disabilities who require reasonable accommodations must seek approval for services by providing appropriate and recent documentation to the Office of Disability Support Services (DSS). This office is in Craven Hall 4200, contact 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.



## **Credit Hour Policy Statement**

Per the University Credit Hour Policy:

- In this course, each unit of credit corresponds to one hour of class time and two hours of student learning outside of class. Examples of outside active learning are text readings and associated reading responses, lesson planning, interviewing students, authentic teaching practice with students, and working on course assignments outside of class.

## **All University Writing Requirement**

In keeping with the All-University Writing Requirement, all courses must have a writing component of at least 2,500 words (approximately 10 pages), which will be administered in a variety of ways in this course including lesson plans, assessment assignments, course text reading responses, reflections, and journal writings on authentic teaching experiences.

## **Course Format**

Online synchronous format

## **Necessary Technical Competency Required of Students**

Students are required to access and use Cougar Courses for assignment and course resources, uploading assignments, and for using the forum tool. Please use Word.docx for text files in this course. Students will share and collaborate on work using Google Docs. This course infuses interactive technology tools in course learning, so please bring computers to class as well as for class notes and access to your CSUSM email.

## **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 School 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.

## **Computer Use During Class Sessions**

You are welcome to use a laptop computer in class (in fact, it is highly encouraged to bring your laptop to class for various activities and for researching) 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. Please be considerate of your instructor and peers in this regard. It is greatly appreciated by all!

## **Cell Phones**

Please turn off your cell phone before the start of each class. In addition, there will be no texting during class. It is unprofessional for teachers to use their cell phone during meetings with peers or during professional

development activities (our class is considered professional development!). Your consideration will be appreciated by peers.

**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.

## COURSE SCHEDULE

Date	Course Topics & Activities	Readings & Work Due
<b>Session 1</b>  8/31/20	<b>Introduction to Mathematics Education</b> <u>Course Overview</u> What does it mean to “do mathematics”? (Big picture) Characteristics of Effective Classrooms: Overview of Instructional Practices Developing understanding—How do kids learn? Problem solving in the mathematics classroom	1. Teaching Mathematics in the 21 <sup>st</sup> Century  <b>Standards Presentations Sign-Ups</b>
<b>9/07/20</b>	<b>LABOR DAY-NO CLASS</b>	
<b>Session 2</b>  9/14/20	<b>Unpacking the standards:</b> - Common Core Content Standards (CCCS) for Mathematics - Mathematics Framework for CA Public Schools  Effective math classrooms: Introduction to Student Observations	2 - Exploring What It Means to Know and Do Mathematics  <b>Math Learning Activities (MLA) Groups and Chapter Sign-ups</b>  <b>Lesson Plan Pairs Sign-ups</b> <b>Book Club Groups Sign ups</b>
<b>Session 3</b>  9/21/20	<b>Building a Math Learning Community</b> <b>Lesson Planning</b> - Conceptual vs. procedural knowledge - Introduction to Cognitively Guided Instruction (CGI) - Assessment – Connecting instruction to assessment	3 -Teaching Through Problem Solving
<b>Session 4</b>  9/28/20	Student Math Interviews: Assessing Student Learning  Observations in the Mathematics Classroom  <b>Group presentations of assigned CCCS for Mathematics</b>	4 - Planning in the Problem- Based Classroom 5 - Building Assessment into Instruction <b>Book Club 1</b>  <b>DUE:</b> <b>Group presentations of assigned CCCS for Mathematics</b>
<b>Session 5</b>  10/05/20	Math and Special Populations: Creating Inclusive Mathematics Classrooms	6 - Teaching Mathematics Equitably to All Children  <b>Book Club 2</b>
<b>Session 6</b>  10/12/20	<b>Number Sense I:</b> What it means and how we can help children develop it.  Technology in Mathematics – Assessment tools	8 - Developing Early Number Concepts and Number Sense  <b>Book Club 3</b>  <b>DUE:</b> <b>Math Classroom Observation Template: Option 1</b>
<b>Session 7</b>  10/19/20	<b>Number Sense II:</b>  Classification of word problems for addition, subtraction, multiplication, and division.  Constructing efficient mental tools for fact mastery.	9 - Developing Meanings for the Operations 10 - Helping Children Master the Basic Facts  <b>Book Club 4</b>  <b>DUE:</b>

		<b>Math Classroom Observation Template: Option 1</b>
<b>Session 8</b> 10/26/20	<b>Number Sense III:</b> How do we promote understanding of place value?  <b>Math Learning Activities X 2</b>	11 – Developing Whole-Number Place-Value Concepts  <b>Book Club 5</b>  <b>DUE:</b> <b>Math Classroom Observation Template: Option 1</b>
<b>Session 9</b> 11/02/20	<b>Number Sense IV:</b> Flexible methods of computation/mental strategies/estimation. Error Patterns in Computation  <b>Math Learning Activities X 2</b>	12 – Developing Strategies for Addition and Subtraction Computation  13 - Developing Strategies for Multiplication and Division Computation  <b>Book Club 6</b>  <b>DUE:</b> <b>Math Classroom Observation Template: Option 2</b>
<b>Session 10</b> 11/09/20	<b>Algebraic Reasoning and Functions</b> – Exploring patterns, variables, and equations.  <b>Math Learning Activities X 2</b>	14 - Algebraic Thinking: Generalizations, Patterns, & Functions  <b>Book Club 7</b>  <b>DUE:</b> <b>Math Classroom Observation Template: Option 2</b>
<b>Session 11</b> 11/16/20 **1	<b>Fractions:</b> Constructing understanding of fractions  <b>Classroom Lesson Presentation: Number and Operations in B-10: Place Value (Grades 1 or 2) and (Grades 3, 4, or 5)</b>  <b>Math Learning Activities X 2</b>	15 - Developing Fraction Concepts  <b>Book Club 8</b>  <b>DUE:</b> <b>Math Classroom Observation Template: Option 2</b>
<b>Session 12</b> 11/23/20 ***2  ***3	<b>Fractions:</b> fraction computation  <b>Classroom Lesson Presentation: Operations and Algebraic Thinking (Grades 1, 2, or 3)</b>  <b>Lesson Classroom Presentation: Operations and Algebraic Thinking (Grades 4 or 5) x 2</b>	16 – Developing Strategies for Fraction Computation 17 – Developing Concepts of Decimals and Percent  <b>Book Club 9</b>

		<b>DUE:</b> <b>Math Classroom Observation</b> <b>Template: Option 3</b>
<b>Session 13</b>  11/30/20  <b>***4</b>	<b>Measurement - Customary and metric system</b>  <b>Classroom Lesson Presentation: Number and Operations: Fractions (Grades 3 or 4) and (Grades 4 or 5) x 2</b>	18 – Proportional Reasoning 19 - Developing Measurement Concepts  <b>Book Club 10</b>  <b>DUE:</b> <b>Math Classroom Observation</b> <b>Template: Option 3</b>
<b>Session 14</b>  12/07/20	<b>Geometry – Developing geometric reasoning and spatial sense</b>  <b>Activities TBD</b>  <b>Probability &amp; Data Analysis</b> – Developing meaningful experiences in gathering and displaying statistical data. Exploring concepts of chance, simple and independent events.  <b>***5 Classroom Lesson Presentation: Measurement &amp; Data (Grades 1, 2, or 3) and (Grades 4 or 5)</b>  <b>***6 Classroom Lesson Presentation: Geometry (Grades 1, 2, or 3) and (Grades 4 )</b>  <b>Course Wrap-Up</b>	20 - Geometric Thinking and Geometric Concepts  <b>Book Club 11</b>  <b>DUE:</b> <b>Math Classroom Observation</b> <b>Template: Option 3</b>  21 – Developing Concepts of Data Analysis  22 – Exploring Concepts of Probability
	<b>Assessment</b> - This competency will be infused throughout the course. Use this chapter as one reference for planning instruction.  <b>Technology</b> – This competency will be infused throughout the course. Use this chapter as an ongoing reference.	5 - Building Assessment into Instruction  7 – Using Technological Tools to Teach Mathematics

**NOTE: While this syllabus is carefully planned, it may be modified or adjusted at any time in response to the learning needs of the class.**

**Color Coding Legend:**

Blue = Mathematical Content and Course Topics and Due Assignments

Orange = Mathematical Learning Activities

## \*OVERVIEW OF THE PROBLEM-BASED THREE-PART LESSON INSTRUCTIONAL MODEL

**Problem-centered teaching** opens the mathematics classroom to exploring, conjecturing, reasoning, and communication. This model is very different from the “transmission” model in which teachers tell students facts and demonstrate procedures and then students memorize the facts and practice the procedures. This model looks at instruction in three phases: launching, explore, and summary.

### **Launch (Before)**

In the first phase, the teacher launches the problem with the whole class. This involves helping students understand the problem setting, the mathematical context, and the challenge. The following questions can help the teacher prepare for the launch:

- What are students expected to do?
- What do the students need to know to understand the context of story and the challenge of the problem?
- What difficulties can I foresee for students?
- How can I keep from giving away too much of the problem?

The launch phase is also the time when the teacher introduces new ideas, clarifies definitions, reviews old concepts, and connects the problem to past experiences of the student. It is critical that, while giving students a clear picture of what is expected, the teacher leaves the potential of the task intact. He or she must be careful not to tell too much and lower the challenge of the task to something routine or to cut off the rich array of strategies that may evolve from an open launch of the problem.

### **Explore (During)**

In the explore phase, students work individually, in pairs, in small groups, or occasionally as a whole class to solve the problem. As they work, they gather data, share ideas, look for patterns, make conjectures, and develop problem-solving strategies. It is inevitable that students will exhibit variation in their progress. The teacher’s role during this phase is to move about the classroom, to observe individual performance, and to select specific student work samples to be shared during the summary phase. The teacher helps students persevere in their work and differentiate their work by asking appropriate questions and providing confirmation and redirection where needed. For students who are interested in and capable of deeper investigation, the teacher may provide additional challenges related to the problem. Although it is imperative that all students be given enough time and opportunity to thoroughly work on the problem, it is not always necessary for every student to finish the problem at this time.

The following questions can help the teacher prepare for the explore phase:

- How will I organize the students to explore this problem? (Individuals? Pairs? Groups? Whole class?)
- What materials will students need?
- How should students record and report their work?
- What different strategies can I anticipate they might use?
- What questions can I ask to encourage student conversations, thinking, and learning?
- What questions can I ask to focus their thinking if they become frustrated?
- What questions can I ask to challenge students if the initial question is “answered”?

### **Summary (After)**

The summary phase of instruction begins when students have gathered sufficient data or made sufficient progress toward solving the problem. In this phase, students discuss their solutions as well as the strategies they used to approach the problem, organize the data, and find the solution. During the discussion, the teacher helps students enhance their understanding of the mathematics in the problem and guide them in refining their strategies into efficient, effective problem-solving techniques.

Although the summary discussion is led by the teacher, who has collected specific student work samples, he or she would like shared, students play a significant role. Ideally, they should pose conjectures, question each other, offer alternatives, provide reasons, refine their strategies and conjectures and make connections. As a result of the discussion, students should become more skillful at using the ideas and techniques that come out of the experience with the problem.

During the summary phase, content goals of the problem, investigation, and unit can be addressed, allowing the teacher to assess the degree to which students are developing their mathematical knowledge. At this time, teachers can make additional instructional decisions that will enable all students to reach the mathematical goals of the activities.

The following questions can help the teacher prepare for the summary:

- How can I help the students make sense of and appreciate the variety of methods that may be used?
- How can I orchestrate the discussion by choosing specific student work samples that will help students summarize their thinking about the problems?
- What concepts or strategies need to be emphasized?
- What ideas do *not* need closure at this time?
- What definitions or strategies do we need to generalize?
- What connections and extensions can be made?
- What new questions might arise and how do I handle them?
- What will I do to follow-up, practice, or apply the ideas after the summary?

*From: Elementary Mathematics Curriculum Guide for Teachers – Revised*

**NAME:**

## Lesson Sketch Template

Please include the following **Essential Elements** in your template:

1. **Lesson Title** – Create a “catchy” title that will attract and motivate students to engage in your activities.
2. **Grade level:**
3. **Time needed for the lesson:**
4. **State Content Standard(s):** Annotate
5. **CA English Language Development (ELD) Standard(s)** : List the standard(s)—include both number and text--that are most relevant to the lesson.
6. **Content objective(s) based on the content standards:** What do you want students to be able to do? Objectives should be tied to the content standards  
Write in complete sentences. Use an action verb and explain how students will demonstrate their new knowledge and understanding.

*Example: Using Pattern Blocks and Pattern Block Paper, students will be able to accurately solve and record fraction addition and subtraction problems.*

*Example: Upon successful completion of the lesson, students will **demonstrate** understanding of \_\_\_\_\_ by \_\_\_\_\_.*

*Example: Upon successful completion of the lesson, students will be able to \_\_\_\_\_ by \_\_\_\_\_.*

7. **ELD Language Objective(s):** Tells “how” the students will learn and/or demonstrate their learning through the four domains of language: reading, listening, speaking, and writing. Consider how you will include objectives that meet the needs of your students’ proficiency levels (emerging, expanding, bridging)

*Example: In pairs, students will (be able to) orally describe the attributes of acute, right, and obtuse triangles to their math partner.*

*Example: Students will (be able to) write descriptions of the attributes of acute, right, and obtuse triangles in their math journal.*

8. **Academic Language:** Key academic vocabulary students must understand in order to participate effectively in the lesson.
9. **Essential Questions (EQs):** List at least two focusing questions specific to the core ideas (BIG ideas!) that you want students to be able answer by having successfully participated in your lesson. Ensure high order questions! (see [Bloom’s Taxonomy](#)). EQs do not have to be in interrogatory form:

*Example: Describe the attributes of each of the six types of quadrilaterals.*

*Example: Explain how you can use Base-10 Blocks to model division of a two or three-digit number by a one-digit number.*

10. **Materials and Resources** - What the teacher needs. What the students need including technology if applicable.



11. **Detailed/Brief description of the lesson activity.** Describe step-by-step how the lesson will be conducted. Indicate what the teacher does and what the students will do.

Ask yourself, "Is my lesson plan clear and specific such that it can be taught by another teacher?"

Before the lesson:

During the lesson:

After the lesson:

12. Instructional accommodation(s) for one category of focus student: SPED, EL, GATE

13. **Assessment Plan:** Description of the plan to determine if your students have met **both** the content and language objectives of your lesson.

Provide the criteria for assessment--What will you assess in relation to the:

- 1) State content standards
- 2) ELD Standards
- 3) Content objectives
- 4) ELD objectives.

How will these criteria will be assessed?