

## **EDU 154/254. Math and Science: The Elementary Curriculum**

### **Opportunity Task #2. Common Core Standards-Based Math Lesson Plan and Rubric**

**This task provides feedback on the following TPEs:**

**TPE 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

**TPE 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

**TPE 3.1** Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks

**TPE 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.

**TPE 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)

**TPE 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.

**TPE 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

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

**TPE 5.8** Use assessment data, including information from students' IEP, IFSP, ITP, and 504 plans, to establish learning goals and to plan, differentiate, make accommodations and/or modify instruction.

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#### **Purpose**

The goal of this assignment is to provide you the opportunity to design and teach a math lesson to your peers and receive feedback from them. You will plan using the Common Core Math Standards. By using appropriate assessment data, specific strategies for instruction for students with special needs will be indicated throughout the lesson with excellent rationales. Your lesson plan should include specific considerations and appropriate support and accommodations/modifications to support and facilitate student understanding of math concept matter.

#### **Preparation**

1. Participation in and discussion of math lessons taught by the instructor. The instructor will incorporate and make explicit various subject-specific strategies that are known to produce greater success in student learning, including those designed for English language learners and students with exceptional needs. The instructor will model strategies to encourage all students to pursue their interests in Math.

2. Reading and discussion of text and articles about the manner in which learning occurs, with special emphasis on constructivist learning theory as it relates to the acquisition of math concepts
3. Reflecting on effective teaching strategies during early fieldwork strategies, as well as course readings and in-class demonstrations.

**Performance Demonstration:**

Candidates will individually develop and submit a grade-level, developmentally appropriate, problem-solving Mathematics lesson that engages students in academic discourse. The lesson will incorporate the California Common Core State Standards in Math addition to a language objective.

Modifications/accommodations for an **assigned “virtual student with an IEP”** must be included.

Candidates will write their lesson plans using the MSMU lesson plan template (see attached)\*

**Assessment**

Candidates’ individual lesson plans will be assessed using the attached rubric.

**EDU 154/254: Math and Science: Elementary Curriculum  
Common Core Math Lesson Plan**

TPE	Criteria	4	3	2	1	0
<p><b>TPE 3.1</b> Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks</p> <p><b>TPE 3.3</b> 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)</p>	Common Core Math Framework and Standards for content and practices	All information, concepts and investigations reflect an exceptional and accurate understanding of the content being presented. Best practice strategies are embedded throughout all parts of the lesson and explained with excellent rationales. Explicit ties to CA Common Core Math Content and Practices Standards are clearly exhibited.	All information, concepts and investigations reflect a solid and accurate understanding of the content being presented. Best practice strategies are embedded throughout all parts of the lesson with rationales provided. Explicit ties to CA Common Core Math Content and Practices Standards are clearly exhibited.	All information, concepts, and investigations reflect an adequate and accurate understanding of the content being presented. Explicit ties to CA Common Core Math Content and Practices Standards are clearly exhibited.	Some information, concepts and investigations reflect an adequate and accurate understanding of the content being presented, but some misconceptions are apparent. Limited connections to CA Common Core Math Content and Practices Standards are exhibited.	Many misconceptions about the information, concepts and investigations are apparent. No connections are made to California Common Core Standards.
<p><b>TPE 3.2</b> 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.</p>	Math instruction uses knowledge about specific student disabilities from IEP to include accommodatio	Using appropriate assessment data, such as virtual students' IEP excerpts, specific strategies for instruction for students with special needs are indicated throughout the lesson with	Using appropriate assessment data, such as virtual students' IEP excerpts, specific strategies for instruction for students with special needs are indicated throughout the lesson with excellent rationales.	Using appropriate assessment data, such as virtual students' IEP excerpts, specific strategies for instruction for students with special needs are	General strategies for instruction for students with special needs are indicated and/or rationales are inadequate. Includes some considerations and appropriate support but does not	No strategies or rationales for instruction for students with special needs are indicated in the lesson. No evidence of considerations,

<p><b>TPE 5.8</b> Use assessment data, including information from students' IEP, IFSP, ITP, and 504 plans, to establish learning goals and to plan, differentiate, make accommodations and/or modify instruction</p>	<p>ns and modifications that allow all students access to the curriculum References in the rationales refer to researched practices from acknowledged experts in the field</p>	<p>excellent rationales. Includes specific considerations and appropriate support and accommodations/modifications to support and facilitate student understanding of math concept matter. References in the rationales refer to researched practices from acknowledged experts in the field</p>	<p>Includes specific considerations and some support and accommodations/modifications to support and facilitate student understanding of math concept matter.</p>	<p>indicated in parts of the lesson with adequate rationales. Includes some considerations and accommodations/modifications to support and facilitate student understanding of math concept matter.</p>	<p>specify detailed accommodations/modifications to support and facilitate student understanding of math concept matter. Does not include specific assessment data.</p>	<p>support, or accommodations /modifications to support and facilitate student understanding of math concept matter. Does not include any assessment data.</p>
<p><b>TPE 4.3</b> 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.</p>	<p>Math instruction includes opportunities for students to apply related skills in Common Core literacy, speaking and listening, writing.</p>	<p>Lesson plan includes <b>multiple</b> opportunities for students to apply Common Core Language Arts (Speaking, Listening, Writing, Reading) through the use of mathematical discourse, math journals and reading informational text. The Common Core ELA standards are specifically identified.</p>	<p>Lesson plan includes <b>several</b> opportunities for students to apply Common Core Language Arts (Speaking, Listening, Writing, Reading) through the use of mathematical discourse, math journals and reading informational text</p>	<p>Lesson plan includes <b>some</b> opportunities for students to apply Common Core Language Arts (Speaking, Listening, Writing, Reading) through the use of mathematical discourse, math journals and reading informational text</p>	<p>Lesson plan includes <b>few</b> opportunities for students to apply Common Core Language Arts (Speaking, Listening, Writing, Reading) through the use of mathematical discourse, math journals and reading informational text</p>	<p>Lesson plan includes <b>no</b> opportunities for students to apply Common Core Language Arts (Speaking, Listening, Writing, Reading) through the use of mathematical discourse, math journals and reading informational text</p>
<p><b>TPE1.3</b> Connect subject matter to real-life contexts and provide</p>	<p>Math instruction</p>	<p>Lesson plan includes the provision of</p>	<p>Lesson plan includes the provision of relevant</p>	<p>Lesson plan includes the</p>	<p>Lesson plan does not include the</p>	<p>Lesson plan does not include</p>

<p>active learning experiences to engage student interest, support student motivation, and allow students to extend their learning</p> <p><b>TPE 1.5</b> 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</p> <p><b>TPE 3.1</b> Demonstrate knowledge of subject matter, including the adopted California State Standards and curriculum frameworks</p>	<p>provides connections to students' real-life experiences and engages students in active developmentally appropriate learning experiences.</p>	<p>relevant real-life experiences throughout the lesson that are developmentally appropriate, stimulate(s) students' curiosity to drive inquiry, and promote students' critical thinking. Lesson sequence <b>seamlessly</b> aligns the California Common Core Math Content and Practice Standards throughout the lesson. Anticipation of student experiences to drive instruction is included.</p>	<p>real-life experiences throughout the lesson that are developmentally appropriate and stimulate(s) students' curiosity to drive inquiry, and promote students' critical thinking. Lesson sequence <b>seamlessly</b> aligns the California Common Core Math Content and Practice Standards throughout the lesson.</p>	<p>provision of relevant real-life experiences at some point in the lesson that are developmentally appropriate and stimulate(s) students' curiosity to drive inquiry, and promote students' critical thinking. Lesson sequence <b>adequately</b> aligns the California Common Core Math Content and Practice Standards throughout the lesson.</p>	<p>provision of relevant real-life experiences or may include experiences that are not developmentally appropriate to drive inquiry, and promote students' critical thinking. Lesson sequence <b>incompletely</b> aligns the California Common Core Math Content and Practice Standards.</p>	<p>the provision of relevant real-life experiences. Lesson sequence <b>incompletely</b> aligns the California Common Core Math Content and Practice Standards.</p>
<p><b>TPE 5.1</b> 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</p> <p><b>TPE 5.2</b> Collect and analyze assessment data from multiple</p>	<p>Math instruction includes various forms of assessment that supports both assessment for learning and assessment of learning.</p>	<p>Lesson plan indicates <b>several</b> opportunities for various assessments including but not limited to the following <b>4</b>: diagnostic, formative, self-reflective, and summative.</p> <p>Appropriately collect and analyze assessment data from</p>	<p>Lesson plan indicates <b>several</b> opportunities for various assessments including but not limited to the following <b>4</b>: diagnostic, formative, self-reflective, and summative.</p> <p>Appropriately collect assessment data from multiple measures and include sources to plan</p>	<p>Lesson plan indicates <b>some</b> opportunities for various assessments including <b>3</b> of the following: diagnostic, formative, self-reflective, and summative.</p> <p>Assessment data includes a few</p>	<p>Lesson plan indicates <b>few</b> opportunities for various assessments including <b>2</b> of the following: diagnostic, formative, self-reflective, and summative.</p> <p>Assessment data includes a few</p>	<p>Lesson plan indicates <b>no or only 1</b> opportunity for assessment and/or no purpose for assessments is provided.</p> <p>Does not include any plans or modifications. Does not include</p>

<p>measures and sources to plan and modify instruction and document students' learning over time</p>		<p>multiple measures and include sources to plan and modify instruction accordingly, including differentiation, accommodations, and/or modifications as necessary.</p>	<p>and modify instruction accordingly, including differentiation, accommodations, and/or modifications as necessary. Does not include analyzing assessment data.</p>	<p>measures and include sources to plan and modify instruction accordingly, including differentiation, accommodations, and/or modifications as necessary.</p>	<p>measures and but does not include sources to plan and modify instruction accordingly, including differentiation, accommodations, and/or modifications as necessary.</p>	<p>differentiation, accommodation, and/or modifications.</p>
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**Lesson Plan Format for  
Specially Designed Academic Instruction in English (SDAIE)  
with SIOP Elements**

**MSMU Lesson Plan Format**

**Context and Goals**

Grade/Class/Subject:

*(For what class is this lesson designed?)*

*(Your name)*

Teacher:

Time/Duration of the lesson: *(i.e. 9:15-10:00 or 45 minutes)*

English Language Proficiency of Students: *(Before classroom instruction, teachers will understand their students' English language proficiency, and the language demands of the lesson's instructional materials.)*

California Content Standards:

*(Which standards do you plan to teach? Paste these from the Current CA Content Standards)*

Enduring Understandings:

*(What concepts/big ideas?)*

Essential Knowledge/Skills:

*(What knowledge/skills? How does this lesson build upon prior lessons? How will this knowledge/skill enable students to understand future lessons?)*

Higher-Order Questions:

*(What is/are the focusing question(s) for this lesson?)*

**Observable Outcomes**

**What do you want students to learn?**

**Assessment/Checking for Understanding**

**What evidence will you gather/look for?**

Content Objectives:

*(How will you know if students learned both the content and*

<p><i>(What specific objectives from the content standards above does this lesson address?)</i></p>	<p><i>language objectives? What informal and/or formal methods will you use to gather evidence? What criteria will you use to assess learning? How might pre-assessment be used in your analysis of this evidence?)</i></p>
<p><b>Academic Language Objectives:</b> <i>(What specific objectives from the ELD standards does this lesson address?)</i></p>	
<p><b>Key Vocabulary:</b></p>	<p><b>Supplementary Materials:</b> <i>(What resources, “realia”, visuals, documents, or manipulatives will you use?)</i></p>
<p><b>Technology in Support of Learning:</b> <i>(What type of technology will you use in your instruction?)</i></p>	<p><b>Technology in Support of Learning:</b> <i>(What type of technology will the <u>students</u> use to achieve and/or demonstrate the objectives?)</i></p>

**Anticipated Misunderstandings/Difficulties:**

*(What areas of confusion or difficulty do you anticipate students might encounter with this material? How will you address them?)*



Student Assets:

(What interests, prior knowledge do students bring to help them with this material? Include for all focus students.)

**Lesson Pre-assessment and Sequence:**

<p>Element Describe <b>what</b> will happen-what will teacher and/or students do</p>	<p>Rationale Describe <b>why</b> you chose to do it this way.</p>	<p>Differentiation: Modifications/Adaptations For each segment of the lesson sequence, describe any needed modifications for EL, special needs, or socio-emotional needs.</p>
<p>Pre-Assessment of Students' Knowledge or Ability: (Before instruction begins, how will you assess what students know and/or are able to do related to the objective?)</p>		
<p>LESSON SEQUENCE</p>		
<p>Instruction to Support Learning: (How will you design learning experiences to facilitate students' understandings, knowledge and skills? Things to comment on: teacher's role, student groupings, ways to ensure engagement (i.e., linking information to students' lives and previous learning), ways you are scaffolding.)</p>		<p>(EL focus student: describe this student's EL goals. Describe the assets and challenges related to this lesson for <b>this English learner</b>. What will you do specifically support <b>this student</b> for this lesson?</p> <p>Special Needs focus student: describe this student's special need and relevant IEP</p>

<p>Structured Student Learning Activities:  <i>(What activities will help students grasp and practice concepts/skills? How will students be grouped and manage their learning?)</i></p>		<p><i>goals, his/her assets and challenges related to this lesson. Describe what you will specifically do to support <b>this</b> student for this lesson.</i></p> <p><i>Focus student with social-emotional challenges: Describe the social-emotional assets and challenges for <b>this</b> student. Describe what you will specifically do to support <b>this</b> student for this lesson.</i></p> <p><i>Advanced students: What will you do for those students who already “get it” and need to be challenged in different ways?)</i></p>
<p>Post-Assessment:  <i>(How will you know if students learned both the content and the language objectives? What informal and/or formal methods will you use to gather evidence? What criteria will you use to assess learning? How might pre-assessment be used in your analysis of this evidence?)</i></p>		

<p>Extension:  <i>(How might this lesson be extended into future content areas or lessons?)</i></p>		

Theories that might be useful for rationales (Note: You may wish to refer to your “toolbox” for helpful resources further explaining below):  
 Universal Design for Learning: *Multiple means of representation; Multiple means of action & expression; Multiple means of engagement.(the what, how, and why of learning)*  
 Five E's: *Engage, Explore, Explain, Elaborate, Evaluate*