



THE UNIVERSITY OF TEXAS AT EL PASO  
College of Education- Department of Teacher Education

<b>Title of Course:</b> ELED 4310 (13922) Teaching Mathematics in Elementary Classrooms	<b>Credits:</b> 3
<b>Semester:</b> Fall 2024	<b>Instructor Information:</b> <b>Professor:</b> Dr. David J. Carrejo, Ph.D. <b>Office:</b> College of Education, EDUC 802 <b>Phone:</b> 915-747-5856 <b>E-mail:</b> <a href="mailto:dcarrejo@utep.edu">dcarrejo@utep.edu</a> (best means of contact) <b>Office Hours:</b> By appointment (F2F or Zoom)
<b>Class meeting time:</b> W 12:00 p.m. – 2:50 p.m. <b>Class meeting place:</b> EDUC 405	

**This syllabus is subject to change as needed. Any changes to the syllabus will be announced in class and on Blackboard.**

## I. Course Description

Students enrolled in this course will explore the methods of teaching mathematics in the elementary grades. Emphasis is placed on the equity principle (mathematics for all) and the development of specialized knowledge to nurture conceptual understanding of quantitative reasoning, geometry, and early algebra. Students will reflect upon their own experiences and beliefs about mathematics and mathematics teaching. The course looks at mathematics as a discipline and compares more traditional ideas about what it means to ‘know’ and ‘do’ mathematics to the vision of mathematics advocated by the reform movements as well as what it means to ‘know’ and ‘do’ mathematics relying on constructivist principles of learning and teaching. The course aligns with the professional development standard established by the Texas State Board for Educator Certification:

*The mathematics teacher understands mathematics teaching as a profession, knows the value and rewards of being a reflective practitioner, and realizes the importance of making a lifelong commitment to professional growth and development.*

## II. Course Objectives

Upon completion of the course, students will be better prepared to:

- Understand how children make sense of key mathematics concepts through an epistemology of multiple representations.
- Design and implement mathematics lessons based on constructivist principles of learning and teaching.
- Understand how tools (manipulatives and technology) assist children in their mathematical reasoning and problem solving.
- Make connections between mathematics and other **STEM** disciplines – physical science, technology, and engineering – for the early grades.

### III. Student Learning Outcomes

STUDENT LEARNING OUTCOMES (MATHEMATICS CONTENT)		
TEXAS CONTENT STANDARDS [SBEC] ELED 4310 students will be able to:	TEXES STANDARDS ELED 4310 students will be able to understand:	Measurements (Means of assessment)
<p><b>Standard I. Number Concepts:</b> Understand and use numbers, number systems and their structure, and operations and algorithms</p>	<ul style="list-style-type: none"> <li>Counting</li> <li>Equivalency (and relative magnitude)</li> <li>Integers, rational numbers, and real numbers</li> <li>Place value, decimals, and percentages</li> </ul>	<ul style="list-style-type: none"> <li>Discussion boards</li> <li>Homework assignments</li> <li>Lesson design and reflection</li> </ul>
<p><b>Standard II. Patterns and Algebra:</b> Understand and use patterns, relations, functions, algebraic reasoning, and analysis</p>	<ul style="list-style-type: none"> <li>Relations (<b>variance and invariance</b>) and functions (linear and non-linear)</li> <li>Sequences (<b>patterns</b>)</li> <li><b>Tabular, geometric, and symbolic representations</b></li> <li>Inequalities</li> </ul>	<ul style="list-style-type: none"> <li>Discussion boards</li> <li>Homework assignments</li> <li>Lesson design and reflection</li> </ul>
<p><b>Standard III. Geometry and Measurement:</b> Understand and use geometry, spatial reasoning, and measurement concepts and principles.</p>	<ul style="list-style-type: none"> <li>Units of <b>measurement</b></li> <li>Vectors (direction and magnitude) and angles</li> <li>Length, area, and volume (<b>composition and decomposition</b>)</li> <li>Symmetry</li> <li>Ratio and proportion</li> </ul>	<ul style="list-style-type: none"> <li>Discussion boards</li> <li>Homework assignments</li> <li>Lesson design and reflection</li> </ul>
<p><b>Standard IV. Probability and Statistics:</b> Understand and use probability and statistics and their applications.</p>	<ul style="list-style-type: none"> <li>Collecting and representing data</li> <li>Measures of central tendency</li> <li>Principles of probability</li> <li>Combinations and permutations</li> </ul>	<ul style="list-style-type: none"> <li>Discussion boards</li> <li>Homework assignments</li> <li>Lesson design and reflection</li> </ul>
<p><b>Standard V. Mathematical Processes:</b> Understand and use mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics, and to communicate mathematically.</p>	<ul style="list-style-type: none"> <li>“Proof” and justification in the early years</li> <li>Deductive versus inductive reasoning</li> <li><b>Learning through multiple representations</b></li> <li>Estimation and error</li> <li>Financial literacy</li> </ul>	<ul style="list-style-type: none"> <li>Discussion boards</li> <li>Homework assignments</li> <li>Lesson design and reflection</li> </ul>
<p><b>Standard VI. Mathematical Perspectives:</b> The mathematics teacher understands the historical development of mathematical ideas, the interrelationship between society and mathematics, the structure of mathematics, and the evolving nature of mathematics and mathematical knowledge.</p>	<ul style="list-style-type: none"> <li>History and evolution of certain mathematical concepts, procedures, and ideas</li> </ul>	<ul style="list-style-type: none"> <li>Discussion boards</li> <li>Homework assignments</li> <li>Lesson design and reflection</li> </ul>
<p><b>Standard VII. Mathematical Learning and Instruction:</b> Understands how children learn and develop mathematical skills, procedures, and concepts, knows typical errors students make and uses this knowledge to plan, organize, and implement instruction, meet curriculum goals, and teach all students to understand and use mathematics.</p>	<ul style="list-style-type: none"> <li>Application of research-based theories and principles of learning mathematics</li> <li>Transitions between concrete, symbolic, and ‘abstract’ representations of mathematical knowledge</li> <li>How manipulatives and technological tools can be used appropriately to assist students in developing, comprehending, and applying mathematical concepts</li> <li>How to develop clear learning goals</li> </ul>	<ul style="list-style-type: none"> <li>Lesson design, Implementation and reflection</li> </ul>
<p><b>Standard VIII. Mathematical Assessment:</b> Understands assessment and uses a variety of formal and informal assessment techniques appropriate to the learner on an ongoing basis to monitor and guide instruction and to evaluate and report student progress.</p>	<ul style="list-style-type: none"> <li>How to use a variety of formal and informal assessments and scoring procedures to evaluate mathematical understanding, common misconceptions, and error patterns.</li> </ul>	<ul style="list-style-type: none"> <li>Lesson design, Implementation, and reflection</li> </ul>

## STUDENT LEARNING OUTCOMES (CURRICULUM & INSTRUCTION)

**TEACHER PEDAGOGY STANDARDS [SBEC]  
(Curriculum & Instruction)  
ELED 4310 students will be able to:**

**EDGE ADVANTAGES (EA) & MINER ASSESSMENT (MA)  
ELED 4310 course and residency experiences**

**COURSE**

Demonstrate their understanding of instructional planning and delivery by providing standards-based, data-driven, differentiated instruction that engages students, makes appropriate use of technology, and makes learning relevant for today's learners.

Ensure high levels of learning, social-emotional development, and achievement outcomes for all students, taking into consideration each student's educational and developmental backgrounds and focusing on each student's needs.

Exhibit a comprehensive understanding of their content, discipline, and related pedagogy as demonstrated through the quality of the design and execution of lessons and their ability to match objectives and activities to relevant state standards.

Use formal and informal methods to assess student growth aligned to instructional goals and course objectives and regularly review and analyze multiple sources of data to measure student progress and adjust instructional strategies and content delivery as needed.

- **EA.3** Critical Thinking; **EA.7** Problem Solving;
- **MA 1.1** Standards & Alignment; **MA 1.4** Activities; **MA 2.3** Communication; **MA 2.4** Differentiation

- **EA.8** Social Responsibility
- **MA 1.3** Knowledge of Students; **MA 2.1** Achieving Expectations; **MA 2.3** Communication

- **EA.1** Communication
- **MA 2.2** Content Knowledge & Expertise

- **EA.7** Problem Solving
- **MA 2.5** Monitor & Adjust

**RESIDENCY**

Interact with students in respectful ways at all times, maintaining a physically and emotionally safe, supportive learning environment that is characterized by efficient and effective routines, clear expectations for student behavior, and organization that maximizes student learning.

Hold themselves to a high standard for individual development, pursue leadership opportunities, collaborate with other educational professionals, communicate regularly with stakeholders, maintain professional relationships, comply with all campus and school district policies, and conduct themselves ethically and with integrity.

- **EA.3** Critical Thinking; **EA.7** Problem Solving
- **MA 3.1** Classroom Environment, Routines, and Procedures; **MA 3.3** Classroom Culture

- **EA.6** Leadership; **EA.9** Teamwork
- **MA 4.2** Commitment to the Teaching Profession

### IV. Learning Modules:

This course embeds a **modular format**—that is, each week is “packaged” as a single module so that all the materials, lecture notes, submission areas, discussion posts are in one area for a given week.

### V. Required Text & Readings:

- Carrejo, D.J. (2023). *Foundations for teaching elementary and middle school mathematics*. Dubuque, IA: Kendall-Hunt Publishing. Available at: <https://he.kendallhunt.com/product/teaching-math-elementary-classroom>

- **Geogebra: Dynamic Software for Everyone [Classic 6.0].** Available: <https://www.geogebra.org/download>  
GeoGebra is an open-source dynamic mathematics software for all levels of education that brings together geometry, algebra, spreadsheets, graphing, statistics and calculus in one easy-to-use package: geometry, algebra and a data spreadsheet are connected and fully dynamic. It is freely available for all computer operating systems as well as for smart phones.
- **All additional reading material and handouts will be made available on Blackboard (through my.utep.edu).**  
You MUST have a valid UTEP login and password to access my.utep.edu, Blackboard, and many other relevant UTEP websites. A UTEP e-mail address is required for all e-correspondence and more effective communication.

## VI. Technology Requirements

Course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser. You will need to have access to a computer/laptop, and scanner (which could be an app on your smartphone). You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course. If you do not have a word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

## VII. Inclusiveness and Equity

Learning happens only when we feel respected as a whole human being. My top priority in our classroom is to cultivate relationships of trust and respect and a sense that we see each other as whole, complex human beings. That you experience this in our classroom is important for the sake of your learning in our course *and* for the sake of your future students' learning, so that you feel able to cultivate such relationships with them. To that end, I want you to know that all of you is welcome in our classroom space—all the parts of you as a person are welcome in our discussions, our activities, our assignments, and in our assessments. We are all complex people with a variety of perspectives, experiences, challenges, assets, and resources—our gender identities, our sexual orientations, our religions, our races, our ethnicities, our economic statuses, our immigration statuses, our parenthoods, our veteran statuses, our ages, our languages, our abilities and disabilities. All the parts of you are welcome in our learning community to the extent that you feel comfortable bringing them in. I strive to show respect for the variety and wholeness in each of you, and I expect that each of you shows respect for each other as well. If you feel marginalized in our class, and you feel comfortable discussing it, I would like to know so that I can support you, protect you, and make changes that feel more inclusive and equitable. You can also talk with our Department Chair and/or you can report a complaint of discrimination to the University's Equal Opportunity Office, Kelly Hall, Third Floor, 915-747-5662 or [eoaa@utep.edu](mailto:eoaa@utep.edu).

## VIII. Standards of Academic Integrity

Students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are not attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP) and available in the Office of the Dean of Students, may result in sanctions ranging from disciplinary probation, to failing grades on the work in question, to failing grades in the course, to suspension or dismissal among others.

## IX. COVID-19 Precautions

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit [epstrong.org](http://epstrong.org).

## X. Students with Disabilities Statement

If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Center for Accommodations and Support Services (CASS) located in Union E Room 106. Students who have been designated as having a disability must reactivate their standing with CASS on a yearly basis. Failure to report to this office will place a student on the inactive list and nullify benefits received. If you have a condition which may affect your ability to exit safely from the premises in an emergency or which may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the director of CASS. You may call 915-747-5148 for general information about the Americans with Disabilities Act (ADA).

## XI. Evaluation & Coursework Requirements of Students:

Coursework Requirements	Points
Activities – 5 x 20 pts	100
Discussion boards – 5 x 10 pts	50
Five hours of field experience with documentation – 5 x 10 pts	50
Field experience/observation reflection (25) with field log (10)	35
Lesson planning and design (15 pts) with lesson reflection (25 pts)	50
Attendance/Participation	15
<b>TOTAL</b>	<b>300</b>

How Grades are Determined	
Grade	Percentage (%)
A	90 - 100
B	80 - 89.9
C	70 - 79.9
D	60 - 69.9
F	Below 60

## XII. Course Assignments

### 1. Field Experience/Observation Hours

Per TAC§228.35(b)(1), candidates seeking teacher certification must complete a minimum of 30 clock-hours of field-based experience (FBE) prior to clinical student teaching or internship. **This course requires 5 hours of FBE/Observation.** You will document each field experience/observation and upload the document in Blackboard. Final documentation includes both a log of your experiences/observations and a final reflection paper. All documents will be placed on file in the certification office in the Center for Student Success (CSS) by me at the end of the semester.

#### **Student residents or paraprofessionals:**

You will complete 5 relevant short critical reflections based on your field experiences in teaching (e.g. delivering a math lesson, small group work, observing your mentor teacher) over the course of the semester. You will **maintain a log** of

the hours. Reflections will be turned in on specified dates identified in the calendar. At the end of the semester, you will write a **2-page summative reflection of these field experiences**. Both a log sheet and a guide for the nature and structure of reflections will be made available to you.

***Students who are NOT residents:***

You are required to complete a minimum of 5 hours of video observation (focusing on mathematics instruction at different grade levels). Links to videos will be made available according to the class calendar. You will **maintain a log** of the hours observed, and you will take observation notes. The purpose of watching these videos and making them the focus of class discussion is 1) to develop an **eye for evidence** of effective teaching and learning, and 2) to identify **specific action** steps for applying what was learned. Submit an initial response to each of the following prompts that will form the discussion:

- What teacher behavior(s) stood out to you the most in terms of best practices?
- What student behavior(s) stood out to you the most in terms of active learning?
- What modifications, adaptations, or improvements would you make in the lesson and/or pedagogical practices and WHY?
- What questions do you have regarding what the research says about a specific observation that you made (either of content learning or pedagogical practice)?

Both a log sheet and a note sheet will be made available to you. The notes will be turned in on specified dates identified in the calendar. At the end of the semester, you will write a **2-page summative reflection of your observations**. A guide will be provided to you.

**2. Discussion Boards**

You will be reading chapters from the textbook, and you will be asked to write a reflection on each of these reading assignments. Each discussion prompt will have a specific theme or topic related to mathematics education. Each reflection will be posted on the discussion board. A rubric for your discussion board posts will be provided to you. Each initial response should be substantive (at least 200 words) and must be posted by midnight, Mountain Standard Time, on the evening BEFORE the due date. In your substantive posts you are encouraged to use references (e.g. class notes and/or other resources I provide to you). Show evidence of critical thinking as it applies to the concepts or prompt and/or use examples of the application of the concepts to education. Your replies should build on the concept discussed, offer a question to consider, or add a differing perspective, etc. **YOU MUST RESPOND TO AT LEAST TWO OF YOUR CLASSMATES.**

**3. Activities (Content Exploration Problems)**

There will be short content exploration assignments, primarily skills-based, throughout the semester. They will be posted on Blackboard and due on specified dates. These assignments will reflect not only appropriate mathematics content for teaching and lesson topics for grades EC - 6 but also the core of the content you should expect to see on standardized tests (including your certification test and the STAAR test).

**4. Lesson Planning / Instructional Design (2 parts)**

*The first part of the final project will be a collaborative/concerted effort. Working in groups of 3-4, you will complete Part I of the assignment as described below:*

***Part I: Design a lesson:*** You will be required to create a lesson plan for a given topic for a specific grade level that meets the following criteria: 1) it is appropriate for grades EC – 6; 2) it is aligned with selected Instructional Focus Documents (IFD) for mathematics as well as the Eureka Math curriculum; and 3) it is aligned with STAAR objectives as well as TEKS standards. Final topics and grade levels will be approved by me. You will receive constructive feedback in the form of written analysis from me.

The second part of the final project is an individual effort. Working on your own, you will complete Part II of the assignment as described below:

Part II: Reflect on your lesson design: Analyzing your lesson design, you will write a Lesson Planning and Design Reflection. Final goals, guidelines, and a rubric for this assignment are provided as appendices in this syllabus and will also be available on Blackboard.

### XIII. Course Requirements

- 1. Attendance and participation:** It is expected that students will attend all face-to-face classes and actively participate in working on projects and class discussions. Students are expected to prepare for each class session by reviewing the learning module released each week. Lateness to class is strongly discouraged. With the emphasis on collegiality it is important that all group members be in class to contribute to the group's effort in developing an understanding of what it means to teach mathematics effectively. Attendance will be taken and there will be a student sign-in sheet at the beginning of each class. If a student misses a session, it is the responsibility of the student for knowing and completing all work required. Each attendance will count towards the final grade. Two tardies (including early leaves) will count as one absence. More than two absences may result in a student earning one-letter grade lower in the course.
- 2. Due dates:** Assignments are due on the specified dates. Type or word-process written assignments. All assignments should be double spaced with a 12-point font. Number your pages.
- 3. Calendar changes:** The schedule of topics and reading assignments may change over the course of the semester. Any changes to the syllabus will be announced in class. Every student is responsible for these changes.

### XIV. Recommended Resources for Elementary School Mathematics:

#### **Mathematics Content:**

- [Math Is Fun](#)
- [Annenberg Learner](#)
- Assessment in Mathematics:
  - [Measuring What Counts: A Conceptual Guide for Mathematics Assessment](#)
  - [Mathematics Assessment Project - Assessing 21st Century Math](#)

#### **Mathematics Standards:**

- [NCTM Principles and Standards for School Mathematics](#)
- [State of Texas Assessments of Academic Readiness \(STAAR™\) Resources](#)
- [TEKS for Mathematics](#)
- [Texas Educator Standards](#)

#### **Lesson Resources** (Ctrl+Click to follow the link)

[Better Lesson](#)  
[Early Algebra](#)  
[Early Math Collaborative](#)  
[Education.com](#)  
[Home School Math](#)  
[K5Learning](#)  
[My Teaching Station](#)  
[PreKinders](#)

#### **Special Needs and Learning Disabilities:**

[LDonline](#)  
[Dyscalculia](#)  
[Choices for Learning](#)  
[Technology Apps](#)

**XV. Class Schedule: Please note that the schedule below is subject to change. Weeks highlighted in blue are self-paced modules and there will be NO face-to-face class meeting.**

DATE	CHAPTER/TOPIC	ASSIGNMENTS
<b>WELCOME AND INTRODUCTION TO THE COURSE</b>		
<b>Week 1 August 28</b>	<ul style="list-style-type: none"> <li>Mathematical activity</li> <li>Specialized knowledge for teaching elementary mathematics</li> <li>What is algebra?</li> </ul>	<p><b>Introduction forum due</b>  <b>Podcast:</b> Introduction  <b>Chapter 1:</b> A Fresh Perspective of Mathematical Literacy</p>
<b>GRADES EC - K</b>		
<b>Week 2 September 4</b>	<ul style="list-style-type: none"> <li>Counting</li> <li>Sorting and classification</li> <li>Relative magnitude</li> <li>Early measurement</li> </ul>	<p><b>Chapter 3:</b> Mathematical Foundations for Early Childhood and Kindergarten  <b>Podcast:</b> Number and Operations (Grades EC-K)</p>
<b>Week 3 September 11</b>	<ul style="list-style-type: none"> <li>Attributes</li> <li>Patterns</li> <li>Relations of Objects in Space</li> <li>Part-part-whole relationships</li> </ul>	<p><b>Discussion 1 due</b>  <b>Chapter 3:</b> Mathematical Foundations for Early Childhood and Kindergarten  <b>Podcast:</b> Geometry and Measurement (Grades EC-K)</p>
<b>1<sup>st</sup> GRADE</b>		
<b>Week 4 September 18</b>	<ul style="list-style-type: none"> <li>Initial base ten concepts</li> <li>Introducing the number line</li> <li>Number sentences and the number line</li> </ul>	<p><b>Activity 1 due</b>  <b>Chapter 4:</b> Mathematical Foundations for First Grade  <b>Podcast:</b> Number and Operations (Grade 1)</p>
<b>Week 5 September 25</b>	<ul style="list-style-type: none"> <li>Length, area, and volume</li> <li>Time</li> <li>Fraction as measure</li> <li>Tally graphs</li> </ul>	<p><b>Field experience/Observation 1 due</b>  <b>Discussion 2 due</b>  <b>Chapter 4:</b> Mathematical Foundations for First Grade  <b>Podcast:</b> Geometry and Measurement (Grade 1)</p>
<b>2<sup>nd</sup> GRADE</b>		
<b>Week 6 October 2</b>	<ul style="list-style-type: none"> <li>Solving equations</li> <li>Odd and even numbers</li> <li>Base ten models for addition and subtraction</li> <li>Addition and subtractions as functions</li> </ul>	<p><b>Activity 2 due</b>  <b>Chapter 5:</b> Mathematical Foundations for Second Grade  <b>Podcast:</b> Number and Operations (Grade 2)</p>
<b>Week 7 October 9</b>	<ul style="list-style-type: none"> <li>Patterns</li> <li>Unit fractions</li> <li>Length and area</li> <li>Plotting data</li> </ul>	<p><b>Field experience/Observation 2 due</b>  <b>Chapter 5:</b> Mathematical Foundations for Second Grade  <b>Podcast:</b> Geometry and Measurement (Grade 2)</p>
<b>3<sup>rd</sup> GRADE</b>		
<b>Week 8 October 16</b>	<ul style="list-style-type: none"> <li>Base ten and place value</li> <li>The array model for multiplication and division</li> <li>Multiplication and division word problems</li> <li>Understanding of the rational numbers</li> </ul>	<p><b>Discussion 3 due</b>  <b>Chapter 6:</b> Mathematical Foundations for Third Grade  <b>Podcast:</b> Number and Operations (Grade 3)</p>
<b>Week 9 October 23</b>	<ul style="list-style-type: none"> <li>Estimation</li> <li>Spatial reasoning</li> <li>Area, perimeter, and volume</li> <li>Vectors (directed line segments)</li> </ul>	<p><b>Field experience/Observation 3 due</b>  <b>Activity 3 due</b>  <b>Chapter 6:</b> Mathematical Foundations for Third Grade  <b>Podcast:</b> Geometry and Measurement (Grade 3)</p>



4 <sup>th</sup> GRADE		
<b>Week 9</b> <b>October 30</b>	<ul style="list-style-type: none"> <li>• Factors and multiples</li> <li>• Models for fraction operations</li> <li>• Percentages</li> <li>• Models for whole number operations</li> </ul>	<b>Begin Lesson Design project</b>
		<b>Discussion 4 due</b> <b>Chapter 7:</b> Mathematical Foundations for Fourth Grade <b>Podcast:</b> Number and Operations (Grade 4)
<b>Week 10</b> <b>November 6</b>	<ul style="list-style-type: none"> <li>• Angles</li> <li>• Symmetry</li> <li>• Stem-and-leaf plots</li> </ul>	<b>Activity 4 due</b> <b>Chapter 7:</b> Mathematical Foundations for Fourth Grade <b>Podcast:</b> Geometry and Measurement (Grade 4)
5 <sup>th</sup> GRADE		
<b>Week 11</b> <b>November 13</b>	<ul style="list-style-type: none"> <li>• Mixed numbers and their operations</li> <li>• Rational number division</li> <li>• Squares and square roots</li> <li>• Operations on decimals</li> </ul>	<b>Field experience/Observation 4 due</b> <b>Discussion 5 due</b> <b>Chapter 8:</b> Mathematical Foundations for Fifth Grade <b>Podcast:</b> Number and Operations (Grade 5)
<b>Week 12</b> <b>November 20</b>	<ul style="list-style-type: none"> <li>• Ratio and proportion</li> <li>• The coordinate plane</li> <li>• Scatterplots</li> <li>• The double number line</li> </ul>	<b>Field experience/Observation 5 due</b> <b>Chapter 8:</b> Mathematical Foundations for Fifth Grade <b>Podcast:</b> Geometry and Measurement (Grade 5)
<b>Week 13</b> <b>November 27</b>	<b>THANKSGIVING WEEK – NO CLASS</b>	
6 <sup>th</sup> GRADE		
<b>Week 14</b> <b>December 4</b>	<ul style="list-style-type: none"> <li>• Equivalent expressions</li> <li>• Integers (signed numbers) and vectors</li> <li>• Inequalities</li> <li>• The Pythagorean Theorem</li> </ul>	<b>Activity 5 due</b> <b>Chapter 9:</b> Mathematical Foundations for Sixth Grade <b>Podcast:</b> Number and Operations (Grade 6)
<b>Week 15</b> <b>December 11</b>	<b>EXAM WEEK – NO CLASS MEETING</b>	
		<b>Video observation log (Non-residents only) and observation reflection due (all students)</b>  <b>Lesson plans and lesson reflections due (all students)</b>

## Appendix A: ACTIVE LEARNING LESSON PLAN GUIDE

The lesson plan should be typed and roughly 2-3 pages long. Design a lesson that will build on and extend students' understanding of a chosen math topic in some meaningful way. Your students need to be actively thinking during your lesson. You should strive to keep students mentally active. Teach *through* problem solving/inquiry. Refer to your Van De Walle textbook or any other resource(s) as needed. Your lesson plan should be something that is useful to you as you teach the lesson. It should include information that helps others understand your thinking behind your planning. The plan should include at least the following:

- **Title/Topic**
- **Grade level**
- **Goals and objectives** of your lesson: Be as specific as possible. Include the specific ideas and processes you hope to help your students develop and/or understand.
- **TEKS Standards:** Provide specific, standard expectations for teaching the selected concept/procedures for selected grade level.
- **Instructional Sequence:** Outline the learning plan (teaching & learning activities). This plan should be aligned clearly with the desired results (i.e., geared towards having students meet the objectives, answer the essential questions, and be able to complete the assessment activities). The plan should include the following components:
  - **List of instructional materials & resources:** Include a variety of resources that you used in preparing the lesson (e.g., similar lesson plans that you found on the Internet, information from cooperating teacher, textbook, etc.).
  - **Timeline:** Next to each step, indicate approximate length of time you expect each step to take.
  - **Introductory activities:** Hook/capture (engage) student interest; setting up the task; relate to previous learning (review) and how this aligns with what is to follow; tell students what they will learn and be expected to do as a result of the lesson.
  - **Developmental activities:** Outline the content and outline the instructional strategies & learning activities. Include details what you will do, how you will organize/prepare students for tasks, and what students will do. For example, if you plan to involve students in discussion, list key/stem questions that you might ask to generate discussion.
  - **Closing activities:** List activities that you & students will do to summarize the lesson, reinforce what was covered, and tie everything together so students see how the lesson fits into the context of what they have already done and what is coming next.
  - **Assessment techniques:** Describe what you will do during the lesson to assess student understanding. Describe what you will do with the materials produced (e.g., will you mark questions as you walk around, will you collect journals and write comments, will you evaluate group presentations with a rubric?) Attach copies of any written assessments (tests, rubrics, observational checklists, format for anecdotal records).

**Along with the lesson plan, you should also attach all handouts you would provide students.**

## Appendix B: GUIDELINES FOR LESSON PLANNING & DESIGN REFLECTION

Analyze your **lesson design**, or the structure of the lesson itself. When you think about the design of your lesson, you are mostly thinking about the plan before you put it into practice. Write a reflection paper (**giving specific examples from your lesson plan**), reflecting in depth as you ask yourself the following questions. Your final reflection paper must be at least 2 pages in length.

- **What is the purpose of this lesson?**

Asking this question helps you ensure that you clearly understand your teaching objectives. If you can answer this question, then you will know whether you have accomplished your goals at the lesson's end.

- **What challenges do you foresee in teaching this lesson?**

Thinking through potential obstacles in advance helps you redesign aspects of your lesson that might be especially hard for students to access.

- **How are you addressing diversity?**

This question helps you ensure that over the course of the week, you build activities that meet the needs of the wide range of learners in front of you.

- **How will you know whether this lesson is effective?**

Asking about efficacy in advance helps you prepare informal assessment tools that will allow you to understand whether students are grasping the content.

## Appendix C: RUBRIC FOR ACTIVE LEARNING LESSON PLAN

Category	Exceeds Standard (5 pts)	Meets Standard (3 – 4 pts)	Does Not Meet Standard (0 – 2 pts)
<b>Structure</b>	Lesson Plan format is concise addressing universal design and makes connections to student needs. Included are the elements of Active Learning, Inquiry-based, TPACK, with differentiation that addresses prior knowledge, real world connections, identified (data-driven) student strengths and knowledge gaps.	Lesson Plan format is somewhat concise addressing some of the following areas: universal design and makes connections to student needs. Included are some of the elements of Active Learning, Inquiry-based, TPACK, with differentiation that addresses prior knowledge, real world connections, identified (data driven) student strengths and knowledge gaps.	Lesson Plan format is disorganized and does not include components addressing universal design and making connections to student needs. The elements of Active Learning, Inquiry-based, TPACK, with differentiation that addresses prior knowledge, real world connections, identified (data driven) student strengths and knowledge gaps are not included.
<b>Content</b>	Texas Essential Knowledge and Skills and Learning objective are stated and addressed in the lesson structure. Active, constructive learning is promoted through discovery, critical-creative thinking and challenging expectations. Error Analysis and self-reflection are promoted resulting in student learning goal setting.	Texas Essential Knowledge and Skills and Learning objective are somewhat stated and addressed in the lesson structure. Active, constructive learning is primarily promoted through discovery, critical-creative thinking and challenging expectations. Error Analysis and self-reflection are somewhat promoted resulting in student learning goal setting.	Texas Essential Knowledge and Skills and Learning objective are not stated and addressed in the lesson structure. Active, constructive learning is not promoted through discovery, critical-creative thinking and challenging expectations. Error Analysis and self-reflection are not promoted and does not result in student learning goal setting.
<b>Lesson Delivery Strategies</b>	Strategies for lesson delivery include interactive, hands-on approaches and differentiated instruction to address individual student needs and learning styles. Formative evaluation is integrated to insure content mastery (evidence based). Lesson delivery is literacy-based and provides opportunities for engagement through cross-curricular connections, and integration of varied tools and technology.	Strategies for lesson delivery somewhat includes interactive, hands-on approaches and differentiated instruction to address individual student needs and learning styles. Formative evaluation is somewhat integrated to insure content mastery (evidence based). Lesson delivery is somewhat literacy-based and provides some opportunities for engagement through cross-curricular connections and has some integration of varied tools and technology.	Strategies for lesson delivery does not include interactive, hands-on approaches and differentiated instruction to address individual student needs and learning styles. Formative evaluation is not integrated to insure content mastery (evidence based). Lesson delivery is not literacy-based and does not provide opportunities for engagement through cross-curricular connections and does not have integration of varied tools and technology.

## Appendix D: RUBRIC FOR LESSON PLANNING & DESIGN REFLECTION

Criteria/Standard	5 - Exceeds expectations	4 - Meets Expectations	3 - Emergent	1-2 - Meets Minimum Expectations
<b>Depth of Reflection</b>	Response demonstrates an in-depth reflection on, and personalization of, the theories, concepts, and/or strategies presented in the lesson plan and implementation.	Response demonstrates a general reflection on, and personalization of, the theories, concepts, and/or strategies presented in the lesson plan and implementation.	Response demonstrates a minimal reflection on, and personalization of, the theories, concepts, and/or strategies presented in the lesson plan and implementation.	Response demonstrates a lack of reflection on, or personalization of, the theories, concepts, and/or strategies presented in the lesson plan and implementation.
<b>Viewpoints</b>	Viewpoints and interpretations are insightful and well supported. Clear, detailed examples are provided, as applicable.	Viewpoints and interpretations are supported. Appropriate examples are provided, as applicable	Viewpoints and interpretations are unsupported or supported with flawed arguments. Examples, when applicable, are not provided or are irrelevant to the assignment.	Viewpoints and interpretations are missing, inappropriate, and/or unsupported. Examples, when applicable, are not provided.
<b>Evidence and Practice</b>	Essay shows strong evidence of synthesis of ideas presented and insights gained in this assignment. The implications of these insights for the respondent's overall teaching practice are thoroughly detailed.	Essay shows evidence of synthesis of ideas presented and insights gained in this assignment. The implications of these insights for the respondent's overall teaching practice are presented.	Essay shows little evidence of synthesis of ideas presented and insights gained in this assignment. Few implications of these insights for the respondent's overall teaching practice are presented.	Essay shows no evidence of synthesis of ideas presented and insights gained in this assignment. No implications for the respondent's overall teaching practice are presented.
<b>Self-Evaluations</b>	Self-evaluation shows personal development related to goals set for this assignment.	Self-evaluation shows assessment of progress connected goals set for this assignment.	Self-evaluation shows evidence of assessment of progress connected goals set for this assignment. However, they are not specific	Self-evaluation is generalized, superficial and not connected to goals set for this assignment.
<b>Mechanics</b>	Writing is clear, concise, and well organized with excellent sentence/paragraph construction. Thoughts are expressed in a coherent and logical manner. There are no more than three spelling, grammar, or syntax errors per page of writing.	Writing is mostly clear, concise, and well organized with good sentence/paragraph construction. Thoughts are expressed in a coherent and logical manner. There are no more than five spelling, grammar, or syntax errors per page of writing.	Writing is unclear and/or disorganized. Thoughts are not expressed in a logical manner. There are more than five spelling, grammar, or syntax errors per page of writing.	Writing is unclear and disorganized. Thoughts ramble and make little sense. There are numerous spelling, grammar, or syntax errors throughout the response.