

**EDUC 677: Applications of Elementary Mathematics, Science and Physical Education  
Curriculum and Pedagogy, Part B**

**Units: 4**

**Term—Day—Time: Spring 2019**

**Tuesday's 5:00 p.m. - 8:20 p.m.**

**Meeting Length: 3 hours 20 minutes**

**Location: Zoom**

Please download and import the following iCalendar (.ics) files to your calendar system.

Weekly:

<https://zoom.us/meeting/305910503/ics?icsToken=b1319fae0f6623a1c95d4ed5d9d630286ba3520f17cacd4b90dc893b853a0e6a>

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One tap mobile

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+16465588656,,305910503# US (New York)

Dial by your location

+1 720 707 2699 US

+1 646 558 8656 US (New York)

Meeting ID: 305 910 503

**Instructor: Dr. Katherine Bihr**

**Office: Via Zoom**

**Office Hours: Before class or by appointment. Contact Info: [kbihr@usc.edu](mailto:kbihr@usc.edu)**

**IT Help: (888) 628-5041**

**Hours of Service: 24 hours/daily; 7 days weekly.**

## **Course Description**

This course is designed for Multiple Subject candidates to apply integrated content knowledge with the models of teaching introduced in this program by utilizing a repertoire of pedagogical practices responsive to the needs and interests of diverse learners. Candidates will enroll in discipline-/content-area specific sections of this course. The major goals related to introducing and implementing pedagogical models and practices are to engage learners in the study of a chosen discipline by using various forms of inquiry, and direct instruction that enable learners to become collaborative and independent problem-solvers, as well as critical and creative thinkers. The understandings of the theories and research related to curriculum design and instructional models is a prerequisite to the development of professionalism and prospective teachers' abilities to implement and advocate for appropriate practices responsive to needs, interests, abilities of K-12 students in all educational settings. The explicit knowledge of curriculum designs and instructional models is intended to provide the foundation to assist educators in becoming "teacher leaders" within the classroom, school, district, and community/state/federal context. The essence of this course is to learn and apply how curriculum should be developed according to basic curricular principals; what curriculum should be taught; and how the content should be delivered to develop the cognitive, affective, and social skills that facilitate a set of given learning outcomes. This course is completed in two parts, Part A and Part B, across Terms 2 and 3, respectively. In other words, successful completion of Part A is a pre-requisite to enrollment in Part B.

## **Learning Objectives**

By the end of this course, teacher candidates will be able to:

1. Justify the match between curriculum, models of teaching, and student needs.
2. Exemplify mastery in the implementation of three models of teaching: Direct Instruction, Advance Organizer, and Group Investigation.
3. Show emergent abilities and potential in Socratic Seminar, Roleplaying, and Concept Attainment.
4. Advocate on behalf of the selections of curriculum and instruction decisions to colleagues, administrators, parents, and other stakeholders.
5. Construct a clear and appropriate lesson plan that articulates the relationship between standards, the objective, curriculum, and the model of teaching.

## **Course Notes**

Candidates will have ongoing access to the instructor and fellow classmates throughout the course. Through the Course Wall, e-mails, course calendars, and Forums, the instructor will maintain communication with candidates. These tools also provide candidates with a variety of ways to contact the instructor and share ideas, comments and questions with the instructor and/or classmates through private and public means. In addition, candidates will be made aware of real-time opportunities for discussion with the instructor and classmates. All required materials will be prepared and posted prior to the start of the course, but an instructor may add additional optional material at any point. All links and attachments will be checked weekly for updates. E-mail and chat will be the primary forms of immediate communication with the instructor. E-mail will be checked on a daily basis during the week and will be responded to within 48 hours. The course calendar provides candidates with assignment due dates and notification of scheduled office hours for all faculty members teaching this course. Candidates may attend office hours with any instructor; however, if a student has a specific question about assignments or coursework, it is preferable to attend office hours with your instructor of record.

## **In the Event of Technical Breakdowns**

Candidates may submit assignments to the instructor via e-mail by the posted due date. Remember to back up your work frequently, post papers on the LMS (Learning Management System) or in Blackboard (on campus cohorts) once completed, load files onto a power drive, and keep a hard copy of papers/projects.

## **Standards of Appropriate Online Behavior:**

The protocols defined by the USC Student Conduct Code must be upheld in all online classes. Candidates are not allowed to post inappropriate material, SPAM to the class, use offensive language or online flaming. For more information, please visit: <http://www.usc.edu/student-affairs/SJACS/>

## **Technological Proficiency and Hardware/Software Required**

This course is offered both online and on campus; the activities, expectations and requirements are identical across the two versions. The online course is conducted through a combination of real time and asynchronous modules, just as the on-campus version is conducted with some in-class and out-of-class activities. All candidates will be required to complete assignments online, in the field and independently along with completing related reading assignments. The time needed to complete all assignments fulfills course unit time requirements. By this point in the program, candidates' level of technical competence should include basic knowledge of the Internet. They should have an account on, at least, one site that allows people to interact with one another (e.g. Facebook, MySpace, Skype, etc.). Basic tasks will include posting attachments, opening and posting to discussion forums and uploading assignments including video clips (the mechanics of this will be taught). As in other courses, candidates will need to be able to video record their interactions with their Guiding Teacher and students (which may be accomplished through the use of a portable micro video camera) and upload videos (in time-limited segments). In addition, to complete assignments and access course documents, candidates should have some familiarity with Microsoft Word, Power Point, Excel, and basic Internet surfing.

## COURSE REQUIREMENTS

All of the requirements for this course are described below. The MAT program adheres to the Carnegie standard for course workload. The expected weekly “class time” or contact hours for a course of this length and credit value is 3 hours. The expected weekly “out of class” workload for this course is approximately 6 hours 20 minutes. The following provides a description of all of the Class Time activities and Out-of-Class assignments that are required for this course.

## 1. Class Time Requirements - Up to 2 points each week

Class Time and/or contact hours weekly: The class meets once a week for 3 hours and 20 minutes. For on- line students, in order to receive full credit for class time, you must be present via video and teleconferencing. Class time and participation is worth 10% of the overall course grade.

- We are encouraging you to use multimedia tools to create the most effective learning environments for your classroom including this class. We expect you to be connected through a computer/monitor, video camera, and audio connection. This makes you eligible to earn maximum point value for the class time work. If you are connected by audio only, you are not eligible for the maximum point value assigned during class time. Each student will be required to copy and paste all or parts of homework assignments during class time.
- Students are also required to examine text, image, audio, and video information from the instructor and other students during class time. Instructors will award points during class time for text, image, audio, and video contributions. Students who do not meet these requirements will be deducted points during class time. Instructors will notify students who are deducted points through the private chat option while on line. We are aware that Internet and phone networks can be unpredictable and out of your control. In our experience, these types of interruptions are not frequent, but when they do occur, students will not be held accountable for such events.

Assessment goals for the 16 weeks are to:

1. Design and Teach Four Reflective Focus Videos;
2. Submit an Edtpa (Key Assessment 3); and
3. Complete Key Assessment 4 (Content Area Science)

1. All assignments will include the Common Core Mathematics Standards (CCS), Next Generation Science Standards (NGSS) with an emphasis on the Scientific and Engineering Practices and Crosscutting Concepts described in the NGSS, California Physical Education Standards and academic content standards;
2. English language development standards (if applicable);
3. Learning objectives reflecting the highest of intellectual challenges, including the need to pose questions, conduct purposeful research, think critically, make decisions, and draw reasonable conclusions supported with evidence;
4. Formal and informal assessments;
5. Instructional strategies and learning tasks;
6. Resources and materials and a description about choices were made
7. Units must be designed with real-world problems that foster inquiry and embody key concepts like change, equality, and environment;
8. A description about how students share their understandings;
9. Design experiences in whole group and small-groups that fosters collaboration such as listening, reasoning together, and building upon each other's ideas;
10. A description of how time is structured for feedback that students can receive from classmates and teachers during rehearsals of final findings; such feedback —“What we liked and our questions”—is most helpful and reflects what occurs in actual life experiences;
11. Occasions to revise, modify, and elaborate on findings; and
12. Student and teacher engagement in planning, monitoring of, and self-reflection on work, progress, and results;
13. Opportunities to obtain pre-, formative, and summative assessment information;
14. A clear and easy-to-follow subject-matter integrated curricular structure centered on authentic problems and inquiry;
15. A description of how teachers and students share control of decision making, teaching, and learning; and
16. An analysis about how your knowledge of **your** students informed the lesson plans, such as the choice of text or materials used in lessons, how groups were formed or structured, how you use an analysis of your student learning or experiences (in or out of school) as a resource, and how you structure new or deeper learning to take advantage of specific student strengths.

<b>Grade Level Overviews</b>	<b>Counti ng &amp;</b>	<b>Operations and</b>	<b>Numbers a n d</b>	<b>Measur ent</b>	<b>Geometry</b>
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	<ul style="list-style-type: none"> <li>• Know number names and the count sequence</li> </ul>	<ul style="list-style-type: none"> <li>• Understand addition as putting together and adding to, and understand subtraction</li> </ul>	<ul style="list-style-type: none"> <li>• Work with numbers 11- 19 to gain foundations for place</li> </ul>	<ul style="list-style-type: none"> <li>• Describe and compare measurable attributes</li> </ul>	<ul style="list-style-type: none"> <li>• Identify &amp; describe shapes</li> <li>• Analyze, compare</li> </ul>
<b>GRADE 1</b>		<ul style="list-style-type: none"> <li>• Represent and solve problems involving addition and subtraction</li> <li>• Understand and apply properties of</li> </ul>	<ul style="list-style-type: none"> <li>• Extend the counting sequence</li> <li>• Understand and place value</li> <li>• Use place value</li> </ul>	<ul style="list-style-type: none"> <li>• Measure lengths indirectly and by iterating length units</li> <li>• Tell and write time</li> <li>• Represent</li> </ul>	<ul style="list-style-type: none"> <li>• Reason with shapes and their attributes</li> </ul>
<b>GRADE 2</b>		<ul style="list-style-type: none"> <li>• Represent and solve problems involving addition</li> </ul>	<ul style="list-style-type: none"> <li>• Understand and place value</li> <li>• Use place</li> </ul>	<ul style="list-style-type: none"> <li>• Measure and estimate in standard</li> </ul>	<ul style="list-style-type: none"> <li>• Reason with shapes and their attributes</li> </ul>

		to gain foundations for multiplication	operations to add and subtract	length • Work with time and	
<b>Grade Level</b>	<b>Counting &amp;</b>	<b>Operations and</b>	<b>Numbers and</b>	<b>Measurement</b>	<b>Geometry</b>
<b>GRADE 3</b>		<ul style="list-style-type: none"> <li>• Represent and solve problems involving multiplication and division</li> <li>• Understand properties of multiplication and the relations between multiplication and division</li> <li>• Multiply and divide within 100</li> <li>• Solve problems involving the four operations, and identify and</li> </ul>	<p><b>Base Ten</b></p> <ul style="list-style-type: none"> <li>• Use place value understanding and properties of operations to perform multi-digit arithmetic</li> </ul> <p><b>Fractions</b></p> <ul style="list-style-type: none"> <li>• Develop understanding of fractions as numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects</li> <li>• Represent and interpret data</li> </ul> <p><b>Geometric Measure</b></p>	<ul style="list-style-type: none"> <li>• Reason with shapes and their attributes</li> </ul>
<b>GRADE 4</b>		<ul style="list-style-type: none"> <li>• Use the four operations with whole numbers to solve problems</li> <li>• Gain familiarity with factors and</li> </ul>	<p><b>Base Ten</b></p> <ul style="list-style-type: none"> <li>• Generalize place value understanding for multi-digit whole numbers</li> </ul>		





			<b>Fractions</b> <ul style="list-style-type: none"> <li>• Extend understanding of fraction and equivalence and order</li> </ul>		
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Grade Level	Contin	Operations and	Numbers and	Measurement and	Geometry
<b>GRADE 4 (Con't)</b>			<ul style="list-style-type: none"> <li>• Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers</li> <li>• Understand decimal notation for fractions, and</li> </ul>	<ul style="list-style-type: none"> <li>• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit</li> <li>• Represent</li> </ul>	<ul style="list-style-type: none"> <li>• Draw and identify lines and angles, and classify shapes by properties of their lines and angles</li> </ul>

<b>GRADE 5</b>		<ul style="list-style-type: none"> <li>• Write and interpret numerical thinking</li> <li>• Analyze patterns and relationships</li> </ul>	<b>Base Ten</b> <ul style="list-style-type: none"> <li>• Understand the place value system</li> <li>• Perform operations with multi-digit whole numbers and with decimals to the hundredths</li> </ul> <b>Fractions</b> <ul style="list-style-type: none"> <li>• Use equivalent fractions as a strategy to add and subtract</li> </ul>	<ul style="list-style-type: none"> <li>• Convert like measurement units within a given measurement system</li> <li>• Represent and interpret data</li> </ul> <b>Geometric Measurement</b> <ul style="list-style-type: none"> <li>• Understand</li> </ul>	<ul style="list-style-type: none"> <li>• Graph points on the coordinate plane to solve real-world and mathematical problems</li> <li>• Classify two-dimensional figures into categories based on their</li> </ul>
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## Practice Standards

### Mathematical Practices (8)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

## Connecting Cognitive Guided Practice and the Common Core Practice Standards

In this course candidates will learn to implement the strategies of Cognitive Guided Instructions (CGI). CGI is based on research that shows that children come to school with rich informal systems of mathematical knowledge and problem-solving strategies that can serve as a basis for learning mathematics with understanding. A major goal of CGI in

the elementary curriculum is to help candidates to build on this informal mathematical knowledge so that they understand the new ideas that they are learning. Because this method of teaching is innovative, CGI offers classroom student teachers help in understanding how children's mathematical ideas develop. The focus is on children's thinking, not on specifying teaching procedures or curriculum materials which means that this method can apply to any curriculum materials. CGI is closely aligned with the CC Practice Standards as described below:

1. Make sense of problems and persevere in solving them

**The first mathematical practice** insists that students make sense of the problems and persevere in solving them. This also includes students to monitor and evaluate their progress and change course if necessary. Younger students may rely on using concrete objects or pictures to help conceptualize and solve a problem and check their answer to see if it makes sense. Students, when allowed to solve problems that make sense to them from a young age in one premises of CGI. Students are given a variety of word problems, asked to solve them in ways that makes sense to them, and to share their thinking. Some students may be direct modelers (using a variety of tools), others may use counting strategies, and others may use derived facts (doubles + or - one, sums of ten, etc.) to solve the problem. The one thing that tends to be very common amongst CGI students is that they believe they can solve the problem, they make sense of the problem, and they preserve in solving the problem.

2. Reason abstractly and quantitatively

**The second mathematical practice** requires students to reason abstractly and quantitatively and to create habits of using a variety of properties and to work flexibly with numbers. Students who have had the opportunity to directly model problems from an early age begin to abstract those ideas into numbers and symbols. These experiences allow students to explore the mathematical properties of numbers and operations. For example: Adding  $53 + 38$  a student may solve by adding  $50 + 30$  to get 80 and then adding  $3 + 8$  to get 11, then adding the  $80 + 11$  to get an answer of 91. This student has the understanding that 53 is made up of 50 plus three. It is also clear that the commutative property is being explored. Another student may say 53 plus 40 is 93 but then I need to take off 2 because 40 is two more than 38. This student has the ability to round and compensate for numbers.

3. Construct viable arguments and critique the reasoning of others

**The third mathematical practice** states that mathematical students can construct viable arguments and critique the reasoning of others. In other words, communication is key for a student to be successful. The variety of strategies that students come up with in CGI is a perfect platform for developing dialogue and discussion in the math classroom. Not only do students need to understand their thinking a skilled CGI teachers will ask students to compare strategies. How might two strategies be similar, what was this student thinking when they solved the problem this way, Is there

another way to solve that problem. The structure questioning of teachers using CGI allows students to clarify, listen to arguments of others, and decide whether they make sense. This modeling of good questioning then transfers to students to ask meaningful, useful questions to improve their understanding and arguments.

4. Model with mathematics

**The fourth mathematical practice** is titled model with mathematics, although the component of this standard includes that students can write an equation to go with the situation. CGI contains several different types of problems. When students are expected to write the equation to go with the problem, this mathematical practice is met. For example: John has some apples, he picks 12 more apples, John ends up with 25 apples in his basket. How many apples did John have to begin with?  $A + 12 = 25$  represents this situation. Young students often begin by writing a box in place of the variable "A", but as students progress-writing variables to represent the situation are appropriate.

5. Use appropriate tools strategically

**The fifth mathematical practice** is using tools appropriately and strategically. Students in CGI use a variety of tools to solve problems. Even when solving the same problem some students may use number lines, others hundreds chart, others unifix cubes, others base ten blocks, or tens frames, etc... The tool that makes the sense to the story problem and to the student is appropriate. Using math tools allows students to visualize the problem at hand.

6. Attend to precision

**The sixth mathematical practice** asks students to communicate precisely to others and explain their own reasoning. CGI students are constantly sharing and explaining their ideas to each other, to the teacher, and to the class.

7. Look for and make use of structure

**The seventh mathematical practice** is aligned with the terminology that is used in the Common Core Standards to describe the different problem types matches the actions in CGI problems. In CGI students learn about different join, separate, part-part-whole, compare, multiplication, and division types.

8. Look for and express regularity in repeated reasoning**The eighth mathematical**

**practice** the same as CGI suggests that multiple strategies are used. Not all students think about the problem the same, nor do they solve the problem the same. The common core encourages this type of flexible thinking.

## Common Core Standards K-5

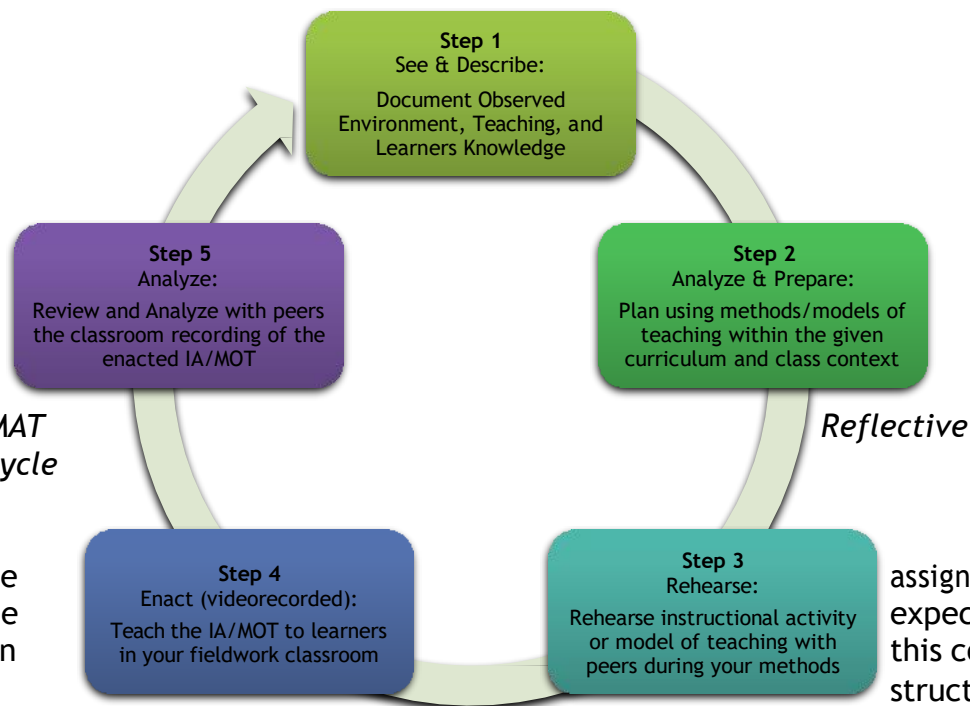
Candidates will explore, analyze and implement the Common Core Standards in Integrated Units assignments. Candidates will also study the organization and coherence of the mathematics content across grades K-12. The Common Core Standards K-12 can be obtained at <http://www.corestandards.org/the-standards.>

### Description and Assessment of Assignments

In this course, you will learn alongside other novice teachers to develop, instantiate, modify, adapt, and or create curriculum in your content area in order to activate and leverage learners' prior knowledge to increase the accessibility, rigor and relevance of the curriculum; plan lessons through the lens of curriculum development, rather than planning lessons as discrete events or activities; effectively translate standards into lesson and unit objectives; engineer opportunities for students to provide evidence of intended learning; scaffold learners' experiences to build disciplinary knowledge, interdisciplinary connections, and academic language; and embed curriculum processes and materials that are authentic to the discipline, enable "real world" application, and promote higher order thinking with the use of more advanced cognitive tools.

The course work (readings, activities, and assessments) are designed to provide you opportunities to observe and investigate the complexities of your fieldwork classroom's social context, environment, instructional practices, and the learners' various funds of knowledge (prior knowledge and academic work). Our goal as your teacher educators is to prepare you to engage in what researchers Lampert et al. (2013) describe as "intellectually ambitious instruction" (p. 226). Smylie & Wenzel (2006) note that if done well, this kind of instruction will help learners "develop in-depth knowledge of subject matter, gain higher-order thinking skills, construct new knowledge and understanding, and effectively apply knowledge to real-world situations" (p. 7, as cited by Lampert et al., 2013). This course borrows Lampert et al.'s conception of rehearsal: "Rehearsal can involve notices in publicly and deliberately practicing how to teach rigorous content to particular students using particular instructional activities" (p. 227) and the models of teaching introduced in Term 1 of this program.

This course also incorporates components of Lampert et al.'s (2013) "Cycles of Enactment and Investigation" and Rodgers's (2002) Reflective Cycle frameworks to engage you in a series of evidence-based inquiry, rehearsal, application, and reflection practices throughout the course and during your fieldwork application of instructional activities (IAs) and models of teaching (MOTs) learned in this course. Represented in a cyclical graphic below, Figure 1 demonstrates the process in which you will engage to complete a reflective teaching cycle of observation, preparation, rehearsal, enactment, and analysis.



**Figure 1: MAT Teaching Cycle**

Each of the you will be complete in will be support this

Each assignment will ask you to provide evidence that you are learning to see, describe, analyze, and experiment or “enact” instructional activities, models of teaching, or other curriculum practices in your discipline and fieldwork classroom context.

assignments expected to this course structured to reflective cycle.

### School Site Requirements

First and foremost, all members of Guided Practice are expected to fulfill the basic requirements of their respective roles—Teacher Candidate, Guiding Teacher or Guided Practice Instructor—as they are laid out in the Guided Practice School Placement Policies (Appendix A) and Roles and Responsibilities (Appendix B). See specifically: “School Site Attendance and Daily Expectations.” Additionally, all teacher candidates must complete the following six assessments during Guided Practice A. Rubrics are available in the Course Toolbox; however, your instructor may provide updated/ revised rubrics via email. Instructors will review rubrics in class as assessments are introduced.

### Assignment 1: The Entry Interview\*

The Entry Interview provides a structured opportunity for you, your Guiding Teacher, and your Guided Practice Instructor to meet together to discuss your understanding of the expectations of this course, your learning goals for the second fifteen weeks of “student teaching,” the elements that will count as “evidence” of you meeting those goals, and the activities that will constitute your assessment of teaching performances throughout the course/placement. The Entry Interview is a mandatory component of this course and program and may be conducted over the phone, on the Adobe connect platform, or through the use of other videoconferencing software. You will be expected to actively assist in the arrangement of the Entry Interview with the

Guided Practice Instructor and Guiding Teacher to take place during the first week of the term or sooner (if amenable to all parties). The Guided Practice Instructor will ask questions to challenge your assumptions, while assisting you in cultivating your goals and refining your plan for achieving and assessing those goals. Your attendance in the Entry Interview is mandatory; the attendance of your Guiding Teacher is strongly preferred, but should your GT not attend, you will not lose credit. Please make every reasonable effort to ensure your Guiding Teacher participates in the Entry Interview, as this opportunity is important to your development and to your GT's understanding of the course goals and requirements. Please refer to the rubric for this assessment before attending your Entry Interview. \*If you are a practicing/licensed teacher in your own classroom, you and the placement office will make arrangements for a peer-mentor to be contracted to support/join you on this entry interview and complete peer observations throughout the semester.

Week 2 - 20 points - 5% of final grade

### **Assessment 2: Weekly USC Candidate Observation and Goal Setting Form**

During the first seven week of this course, you will observe instruction in your assigned classroom(s) and focus on the ways the Guiding Teacher considers the needs of learners, the support the Guiding Teacher provides to learners who have not yet acquired the essential prerequisite skills for each lesson, and the tools the Guiding Teacher uses to facilitate learning (resources, language, and strategies). Additionally, you will identify the theoretical approaches the Guiding Teacher uses and reflect upon how these strategies fit into your beliefs about the ways to achieve higher learning outcomes. Starting in Week 4 and continuing through the end of Week 15, you will lead instructional lessons by following the Scope and Sequence Guide outlined in this syllabus. On a biweekly basis, starting in Week 5, you should provide a copy of the "USC Candidate Observation Form" to your Guiding Teacher, request that s/he complete the observation form by Thursday, and then review its contents, clarify her/his instructional goals for you, and both parties should sign the form. You should then scan (.pdf) or photograph (.jpg) a clear image of the form and upload it to the LMS on the appropriate assignment page. Points are not assigned by the Guiding Teacher - the purpose of the form is for your GT to provide you with instructional and constructive written feedback, from which you can set clear and tangible teaching goals each week. Please encourage your Guiding Teacher to provide as many details as possible in his/her feedback to you on this form. Using the reflective goal questions provided, you will provide a short synopsis of the pedagogical skills you have learned and your future instructional goals on this observation form. Additional instructions may be provided on the 2SC LMS. Please refer to the rubric for this assessment before submission.

6 observation forms due on Friday of Week 5, Week 7, Week 9, Week 11, Week 13, and Week 15. Each complete form is worth up to 10 points each/60 possible points - 10% of final grade

### **Assignment 3: Reflective Focus Videos**

Reflective Focus Videos (RFVs) apply the MAT Reflective Teaching Cycle displayed on p. 4 of this syllabus. The Reflective Teaching Cycle is completed in five distinctive parts, steps, or phases, as demonstrated in the reflective teaching cycle document. In



Term 2, the lesson video assignments required you to observe the learning context, document existing learning and teaching practices, and investigate evidence of ongoing student learning. In Term 3, you will focus your work on instructional activities, models, or methods introduced the program and this course. Your opinion about the quality of teaching and learning is useful, but you must rely on the details that make up the evidence of learning: as in the behaviors, actions, words, and practices you observe, enact yourself, and analyze for the purposes of professional growth as a new teacher. An RFV may be 10-25 minutes in length, depending on the breadth and depth of the instructional activity. A full description of each RFV, including a rubric, will be provided in the RFV Assignment Guide.

**Focused Video 1** (Week 4): Utilizing Student Voices (Video can also be used for edTPA, if applicable)

**Focused Video 2** (Week 6): Differentiating Instruction for Learners with Special Needs, for Gifted and Talented Learners, or for English Language Learners. (Video can also be used for edTPA, if applicable)

**Focused Video 3** (Week 10): Convergent and Divergent Discussion

**Focused Video 4** (Week 12): Problem-Based Learning (Video can also be used for Capstone Project, if applicable)

Weeks 2-12: 10 points per RFV; 40 possible points - 40% of final grade

#### **Assignment 4: edTPA Submission\***

##### **Program Key Assessment #3**

During the first few weeks of the course, Dr. Lindsay Kwock Hu, the edTPA coordinator, will invite you to an informational webinar, to introduce the process for completing the edTPA. Passing the edTPA is a Requirement for Teacher Credentialing in the State of California, and is also a requirement for achieving your MAT degree from the University of Southern California. Even if you are not going to be teaching in California, you must pass the edTPA to complete the requirements for the USC MAT Program. If you do not receive a passing score on your first submission, you will be given one chance to remediate your submission based on feedback from the scorers. All of the assessments and rubrics in this course are preparing you for the assessments and rubric in the edTPA.

The edTPA assessment is composed of three tasks: Planning for Instruction and Assessment; Instructing and Engaging Students in Learning; and Assessing Student Learning.

For this assessment, **during Weeks 4-6**, you will plan and teach 3-5 consecutive lessons (or if you are teaching within a large time block, 3-5 hours of connected instruction) referred to as a learning segment. Consistent with the Common Core State Standards a learning segment prepared for this assessment should provide opportunities for students to comprehend, construct meaning from, and interpret complex text, and to create a product, interpreting or responding to complex features of a text that are just beyond your students' current skill levels. You will begin composing your edTPA assessment during the weeks between GPA and GPB, and then submit the finished product on a pre-determined due date. The website that includes the information you will need is [edtpa.com](http://edtpa.com), and you should select the applicable handbook for your subject area. Throughout this syllabus, you will see

markers that highlight the areas in this course that are directly preparing you for edTPA.

**\*edTPA Alternative Assessment:** If you already hold a current/valid teaching credential and/or do not seek the recommendation for a credential by the MAT Program, you will not have to submit the edTPA to the state for licensure purposes; however, you will complete a similar assessment for the purposes of your own development and growth in your teaching practice. For this assessment, during Weeks 4-6, you will plan and teach 3-5 consecutive lessons (or if you are teaching within a large time block, 3-5 hours of connected instruction) referred to as a learning segment. Once you are enrolled in EDUC 677, please refer to the syllabus, assessment guide, and rubric for more information. Please refer to the assessment guide and rubric for more information.

Week 8: **Credit/No Credit** for complete submission to [Edthena](#) - 10% of final grade

### **Assignment 5: Final Assessment - Capstone Project**

#### **Program Key Assessment #4**

In this project, you will complete a series of assignments that provide you the opportunity to gain critical reflection skills as a teacher researcher and develop your stand as a reflective practitioner in order to identify learning and teaching problems, collect data on those problems, experiment with practice to address those problems, and analyze the results of those experimentations in practice. Your action research or “capstone” project avails the possibility for you to theorize your practice, as grounded in evidence, in order to transform teaching and learning in your classroom across time. These skills are fundamental to your ongoing growth as teacher, researcher, and leader in the years beyond completing this project.

#### **Part A, See and Describe:**

- ☐ In Part A, you will first examine and describe the context of your classroom and your current position (e.g., student teacher, teacher of record, or learning specialist). Using the Rodgers (2002) Reflective Cycle, you will complete a “raw description” without judgment or interpretation of the moments of practice you identified and describe evidence of learning.
- ☐ You will then observe and describe the student-to-teacher interactions and the student-to-student interactions occurring in the classroom. In order to observe your own teaching practice and the learning interactions occurring in lessons you teach, **you should video record one lesson and document in writing what you see/hear/observe.**
- ☐ More information is provided on the assignment guide sheet and template for Part A. Part A is **due Week 3** and is worth 25 points.

#### **Part B, Analyze Evidence of Learning, Identify Problem of Practice, and Prepare Action Plan:**

- ☐ In Part B, you will choose one of the MAT Domains of Teacher Practice and identify one “problem of practice” that you observed in the learning/teaching interactions that occurred in Part A and about which you seek to address through this action research project. You will explain

the technical aspects of your problem.

- You will then identify at least two peer-reviewed research articles that studied the problem of practice or a very similar challenge to student learning and summarize the research problem and findings those studies produced. You will draw connections to the problem of practice in your own classroom and explain whether those findings help you further clarify your problem.
- You will generate an action plan (not necessarily a lesson plan, but a plan of action) that will address the problem of practice with the goal of improving learning in your classrooms. You will incorporate the elements/questions in your selected MAT Domain of Teacher Practice in your action plan. You will describe the methods and actions to be taken to address your problem of practice, which must include specific and concrete ways your action plan aims to improve student learning.
- More information is provided on the assignment guide sheet and template for Part B. Part B is **due Week 10** and is worth 25 points.

**Part C, Experiment/Enact Your Action Plan:**

- In Part C, you will enact your action plan and gather/document data to confirm or disconfirm your action plan's intended outcomes. You are encouraged to video record the lesson, learning interactions, or other situations that occur as you carry out your action plan. You should collect any student work completed during this action plan. You may also collect survey or interview data from students or your Guiding Teacher/Peer Mentor.
- More information is provided on the assignment guide sheet and template for Part C. Part C is **due Week 13** and is worth 25 points.

**Part D, Summarize Findings and Discuss Implications for Future Practice:**

- In Part D, you will summarize your findings as aligned with the goals set forth in your original action plan. You will present "themes" or "discoveries" based on data you collected while enacting your action plan related to your action plan's goals.
- You will analyze those findings to make conclusions about the impact of your action plan on student learning and whether or not your findings adequately addressed your original problem of practice. You will refer back to the MAT Domain of Teacher Practice referenced in your action plan to support your conclusions/analysis of findings.
- Based on this summary and analysis of your project's findings, you will illustrate the implications of these findings for future student learning and for your teaching. Lastly, you will identify your short term (1-2 years) and long term (3-5 years) professional development goals as a reflective teacher and researcher.
- More information is provided on the assignment guide sheet and template for Part D. Part D is **due Week 15** and is worth 25 points.

Up to 100 points total may be earned for the Final Assessment in its complete submission to [Edthena](#), amounting to 20% of your final grade.

## Assignment 6: Class Participation

Punctual attendance and active participation are expected. Points will be based on your punctual attendance and the level and quality of your participation. Discussions will occur at every class meeting or online. Although technical and connectivity issues do occur, online candidates must make every effort to engage in discussion through the 2sc site for video participation (not just via teleconference). Online candidates who do not participate in the full online class time (via video *and* teleconference) may be given only partial credit for participation in that discussion session. Both online and on campus candidates are expected to actively participate in class discussions by asking questions and contributing to the discussion. Excused absences are approved at my discretion and only if the request is made in advance or in the event that you have an emergency, that the request is made as soon as possible after the missed class. Consult me for the process for making up an excused absence.

Week 1, Weeks 3-15. Up to 65 points may be earned for Class Participation, 5 points per class, 13 class meetings, amounting to 10% of your final grade.

### Assessment 7: The Exit Interview

The Exit Interview provides a structured opportunity for each candidate and Guided Practice Instructor to meet together to review and to assess the candidate's progress in this course, and to provide descriptive feedback on the candidate's growth, strengths, and challenges as s/he continues onto Guided Practice B (or in some cases, retakes Guided Practice A). The Exit Interview is a mandatory component of this program. In the exit interview, candidates will be expected to discuss their Teaching and Learning Event Assessments (i.e., planning and teaching videos). In particular, candidates must be prepared to respond to the questions provided in the unit description on p. X. Candidates will be assigned a date and time for their Exit Interviews.

Week 16 - 20 points; 5% of final grade

### Grading Breakdown

Based on the above detailed assignments, the following table summarizes the breakdown of points and percentages (weights) of the major assessments offered in this course.

Assignment!	Points	%of!Grade
Entry!Interview	20	5
Weekly!Observation!Form	60	10
Reflective!Focus!Videos	40	40
edTPA!Submission	CR/NC	10
Final!Assessment	100	20
Class!Participation	65	10
Exit!Interview	20	5
<b>TOTAL</b>	<b>305</b>	<b>100</b>

### Grading Scale

Course final grades will be determined using the following scale:

A	95-100	B	83-86	C	73-76	D	63-66
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A- 90-94	B- 80-82	C- 70-72	D- 60-62
B+ 87-89	C+ 77-79	D+ 67-69	F 59 and below

### Assignment Rubrics

All assignment rubrics are available in the “Documents and Tools” page of the course on the LMS (<http://2sc.rossieronline.usc.edu>).

### Assignment Submission Policy

All assignments will be submitted to the Learning Management System (<http://2sc.rossieronline.usc.edu>).

### Grading Timeline

All assignments will be graded within 5 business days unless otherwise indicated by the professor.

### INCOMPLETES

IN - incomplete (work not completed because of documented illness or some other emergency occurring after the eighth week of the semester; arrangements for the IN and its removal should be initiated by the student and agreed to by the instructor prior to the final exam); IX - lapsed incomplete. Conditions for Removing a Grade of Incomplete: If an IN is assigned as the student’s grade, the instructor will fill out the Incomplete (IN) Completion form which will specify to the student and to the department the work remaining to be done, the procedures for its completion, the grade in the course to date and the weight to be assigned to the work remaining to be done when computing the final grade. A student may remove the IN by completing only the portion of required work not finished as a result of documented illness or emergency occurring after the eighth week of the term. Previously graded work may not be repeated for credit. It is not possible to remove an IN by re-registering for the course, even within the designated time: Time Limit for Removal of an Incomplete. One calendar year is allowed to remove an IN. Individual academic units may have more stringent policies regarding these time limits. If the IN is not removed within the designated time, the course is considered “lapsed,” the grade is changed to an “IX” and it will be calculated into the grade point average as 0 points. Courses offered on a Credit/No Credit basis or taken on a Pass/No Pass basis for which a mark of Incomplete is assigned will be lapsed with a mark of NC or NP and will not be calculated into the grade point average.

### LATE POLICY

All noted assignments are due when listed. Each week traditionally begins on Monday and ends on the following Sunday. Per official MAT Program policy, late assignments will be accepted **only** with the instructor’s advance permission **and** under limited circumstances.

1. To be considered for advance permission to submit a late assignment, the instructor must be notified of the circumstances requiring a late submission no later than 24 hours before the due date and time of the assignment.
2. Acceptable circumstances do NOT include personal holidays, celebrations, and/or vacations OR scheduling conflicts/over-commitments including work and childcare.

3. Late submissions with advance permission will not be docked points for lateness. If advance permission has not been granted, late submissions will not receive full credit.
4. Late submissions will receive a penalty of a 10% per day deduction from the final grade, and there will be no credit for submissions that are more than 5 days late.

You must attend class time at the time you have signed up with your instructor. If there is an extreme emergency, your instructor may allow you to attend another section for credit with PRIOR approval.



## Statement on Academic Conduct and Support Systems

### Academic Conduct

Plagiarism - presenting someone else's ideas as your own, either verbatim or recast in your own words - is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" <https://policy.usc.edu/student/scampus/part-b>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, intimate partner violence, stalking, and harassment are prohibited by the university. You are encouraged to report all incidents to the *Office of Equity and Diversity/Title IX Office* <http://equity.usc.edu> and/or to the *Department of Public Safety* <http://dps.usc.edu>. This is important for the health and safety of the whole USC community. Faculty and staff must report any information regarding an incident to the Title IX Coordinator who will provide outreach and information to the affected party. The sexual assault resource center webpage <http://sarc.usc.edu> fully describes reporting options. Relationship and Sexual Violence Services <https://engemannshc.usc.edu/rsvp> provides 24/7 confidential support.

### Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://ali.usc.edu>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* <http://dsp.usc.edu> provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of Blackboard, teleconferencing, and other technology.

## Overview of Scope & Sequence for Teaching Load Expectations

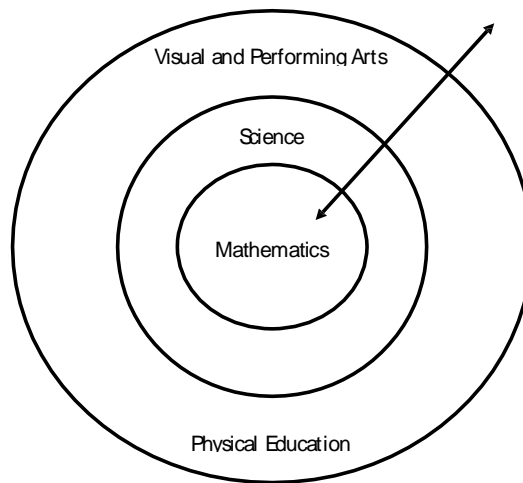
The MAT Program's Scope & Sequence for the two-part sequential course, Applications of Curriculum and Instruction in High Needs Schools Part A and Part B illustrates a steady progression in teaching load responsibilities from Part A to Part B, as noted in the tables below the guidelines provided.

Candidates are typically advised that a "lesson" constitutes one complete learning event that has been planned with a clear and measurable learning objective and includes a *beginning* (e.g., this lesson activity might include a do-now, anticipatory set, or another motivation activity), *middle* (e.g., these lesson activities might include direct instruction and student centered activities with the use of formative assessment techniques), and *end* (e.g., a closure activity such as an exit ticket). A lesson should be viewed as an interactive process rather than as a "presentation" or "lecture." The candidate must create a bond between her or himself and the students s/he is teaching. S/he must learn as much as possible about these students so that s/he can differentiate instruction and design strategies to address the needs of all students in these classes. Candidates should consult her/his USC Professor for additional information about the models of instruction, appropriate length, and acceptable content of lesson designs to be implemented.

### Elementary/Multiple Subjects Candidates:

- ☐ Lessons for early childhood and elementary age students may be shorter (or, in some cases, longer) in length than a secondary class period, but still follow the lesson guidelines mentioned above.
- ☐ The elementary teacher candidate will typically be responsible for teaching one group of students in the Principal-Guiding Teacher's class. If the GT has more than one group of students or "classes," then the candidate should focus on working with two groups of students in Part A and then eventually work with all groups of students for which the GT is responsible, in order to teach full days during the latter part of Part B.
- ☐ Both elementary and secondary candidates will also observe and co-teach with a Collaborating-Guiding Teacher - a second teacher in the building who agrees to this arrangement.

## The Target of Curriculum and Instruction



A. Hasan, University of Southern California, 2018

The Target of Curriculum is a model to provide a process for creating an integrative study unit. An integrative study of practice provides an opportunity for candidates to integrate STEM learning experiences across the curriculum. The mathematics content is the core content theme. Mathematics as the core of the curriculum supports more students active daily engagement in science, physical education and visual and performing arts (VAPA) topics in the elementary curriculum. The sciences, physical education, and VAPA will function as the context for learning the math content, for example, using the context as settings to create a story, investigation, game or real-world applications. The process involves:

- A. Selecting a Common Core Math Standard(s) and a Common Core Practice Standard;
- B. Select a science, VAPA or Physical Education standard that will function as the context of the mathematics task;
- C. Select an essential question;
- D. Create key questions;
- E. Align the multiple-subjects standards; and
- F. Create differentiated and diverse assessment tools that align with the standards.
- G. Design activities that provide opportunities for students to practice and master the standards.

#### **California Multiple Subject Standard 4: Integrative Study of Practice**

In one or more planned components of the program, each prospective multiple subject teacher systematically examines content-specific connections among two or more of the major subject areas that are commonly taught in grades K-8 by investigating their common or inter-related concepts, areas of concern, and methods of inquiry. In the integrative study component(s), the program highlights the underlying values and the higher-order research and thinking skills of the connected disciplines.

#### **Elements for Standard 4: Integrative Study Guidance to Prospective Programs**

**4.1** In the integrative study component(s) of the program, prospective teachers investigate key ideas that are closely related to the California Student Academic Content Standards and State Curriculum Frameworks for Grades K-8.

**4.2** Each integrative study component addresses the Content Specifications for the Multiple Subject Teaching Credential as set forth in Appendix A beginning on page 17 in the CMSS handbook.

**4.3** Each integrative study component develops the prospective teacher's understanding of how the conceptual foundations of the subjects are related to each other, how their concerns overlap, and how their practitioners produce new ideas and confirm new knowledge.

**4.4** Each integrative study component develops the prospective teacher's awareness of fundamental values inherent in the connected disciplines, and includes study and application of their basic concepts, principles and nomenclatures.

**4.5** In the integrative study component(s) of the program, each prospective teacher examines and uses higher-level skills of thinking and research practice as they occur in each discipline (including, but not limited to, the higher-order skills in Appendix A).

## Teaching Load Responsibilities

The Teaching Load Responsibilities listed below are a program-sanctioned recommendation. Should the candidate plan to teach fewer or more lessons than those recommended below, the candidate must gain approval from **both the Guiding Teacher and the USC Instructor**.

Ap pli cat ion s of Cu rri cul um & Ins tru cti on , Pa rt A	Week	Teaching Load	Ap pli cat ion s of Cu rri cul um & Ins tru cti on , Pa rt B	Week	Teaching Load
	1	Learn the curriculum, learners, observe the GTs, and plan your first lesson		1	Learn the curriculum, learners, observe the GTs, and plan your first lesson
	2	Learn the curriculum, learners, observe the GTs, and plan your first lesson		2	2 sequential lessons
	3	Co-teach one lesson with your Guiding Teacher		3	2 sequential lessons
	4	Teach one lesson on your own		4	4 sequential lessons
	5	Teach one lesson on your own and Co-teach another lesson with your GT		5	4 sequential lessons
	6	2 sequential lessons (e.g., Tues & Weds or Weds & Thurs, etc.)		6	6 lessons = 4 sequential + 2 additional sequential (e.g., one lesson per day on Mon & Tues and two lessons per day on Weds & Thurs)
	7	2 sequential lessons		7	6 lessons
	8	3 sequential lessons		8	8 lessons = 4 sequential + 4 additional sequential (i.e., two lessons per day)
	9	3 sequential lessons		9	8 lessons
	10	3 sequential lessons		10	8 lessons, including 1 full day (i.e., your P-GT's full lesson load for one normal day)
	11	4 sequential lessons (i.e., one lesson per day with the same group of learners)		11	8 lessons, including 2 full days
	12	4 sequential lessons		12	4 full days
	13	4 sequential lessons		13	4 full days
	14	2 sequential lessons		14	8 lessons

	15	2 sequential lessons	15	6 lessons
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### Required Readings and Supplementary Materials

Readings are assigned on a weekly basis. Please refer to the course schedule table and unit outlines for the assigned weekly readings.

### Teaching Videos

- ☐ Number Talks - <https://www.youcubed.org/resources/cathy-humphreys-teaching-number-talk/>
- ☐ Mindset: Solving the Math Problem. <https://www.youcubed.org/resources/solving-math-problem/>
- ☐ Elementary Math Initiative Modules
- ☐ Number Talks: Number Sense. <https://www.youtube.com/watch?v=Jeel4Qjow4s>
- ☐ Choral Count <https://www.teachingchannel.org/videos/choral-count-math-lesson>

### Required Readings (Books)

- ☐ Van de Walle, J., Karp, K., Lovin, L., Bay-Williams, J. (2017). Teaching Student-Centered Mathematics. Teaching Mathematics for Understanding. Vol II. 3<sup>rd</sup> Edition.
- ☐ Carpenter, Thomas P., Fennema, E., Franke, Megan L., Levi, Linda & Empson, Susan B. Children's Mathematics: Cognitively Guided Instructions (2015), 2<sup>nd</sup> Edition.
- ☐ Empson, B. Susan & Levi, Linda. (2015). Extending Children's Mathematics: Fractions and Decimals
- ☐ Banko, W., Grant, M. Jabot, M., McCormack, and O'Brien, T. Science Next Generation Standards. (2013). NSTA press. Science Next Generation

## Course Schedule: A Weekly Breakdown

Unit	Week	Topics	Readings and/or Homework	Assignments and Due Dates
1	1 Jan. 10	<p><b>Analyzing Whole Class Understanding</b></p> <p><i>Conceptual Understanding Procedural Fluency &amp; Mathematical Reasoning/ Problem-solving Skills</i></p>	<p><b><u>Who Are My Students?</u></b> <i>See and Describe</i></p> <p><b><u>Survey Before Class 1: K-5</u></b> Common Core Standards &amp; Common Core Practice Standards <a href="https://www.cde.ca.gov/be/st/ss/documents/ccssmathstandardaug2013.pdf">https://www.cde.ca.gov/be/st/ss/documents/ccssmathstandardaug2013.pdf</a></p> <p><b><u>Read Before Class 1</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Assessing for Learning.</b> Chapter 3 (pages 28-40). Van de Walle, Vol II. 3<sup>rd</sup> Edition. <b>Topics:</b> <ul style="list-style-type: none"> <li>➤ Assessment That Supports Instruction</li> <li>➤ Rubrics and Their Uses</li> <li>➤ Plan for Assessment</li> </ul> </li> <li><input type="checkbox"/> <b>Introduction to Cognitive Guided Practice</b> Children's Mathematics <u>Chapter 1</u> (pages 1-6)</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Video record one lesson and document in writing what you see/hear/observe. <b>(CAPSTONE, PART A)</b> <b>Due Week 3</b></li> <li><input type="checkbox"/> Complete the Context of Learning Form <b>Due Week 3</b></li> </ul>

1	2 Jan. 17	<p><b>ENTRY INTERVIEW</b></p> <p>Analyzing Whole Class Understanding</p>	<p><u>Read Before Class 3</u></p> <p>Teaching Mathematics for Understanding. (pages 1-12) Teaching Student-Centered Mathematics Van de Walle Vol II. 3<sup>rd</sup> Edition.</p> <p><u>Topics:</u></p> <ul style="list-style-type: none"> <li>➤ 5 strands of mathematical proficiency</li> <li>➤ 8 Common Core Practice Standards</li> <li>➤ How Do Students Learn?</li> <li>➤ Teaching for Understanding</li> <li>➤ Mathematics Classrooms That Promote Understanding</li> </ul>	<p><b>ENTRY INTERVIEW (No Class)</b></p>
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2	3 Jan. 24	<p><b>Analyzing Whole Class Understanding</b></p> <p><i>Identifying patterns of student learning</i></p>	<p><b><u>Before Class</u></b></p> <p>1. Planning, Teaching and Assessing <i>Culturally and Linguistically Diverse Students</i> (pages 55-68). Van de Walle  <b>Topics:</b></p> <ul style="list-style-type: none"> <li>➤ <i>Mathematics as a Language</i></li> <li>➤ <i>Cultural Responsive Instruction</i></li> <li>➤ <i>Teaching Culturally and Linguistically Diverse Students</i></li> <li>➤ <i>Implementing Strategies for ELLs</i></li> <li>➤ <i>Assessment</i></li> </ul> <p>2. Children’s Mathematical Thinking <b>Chapter 1</b> (7-16). CGI  <b>Topics:</b></p> <ul style="list-style-type: none"> <li>➤ <i>Relational Understanding of Fractions</i></li> <li>➤ <i>The Fundamental Properties of Operations &amp; Equity</i></li> <li>➤ <i>Addition and Subtraction Problem Types</i></li> </ul> <p><b>Chapter 2 (7-16). CGI</b>  <b>Topics:</b></p> <ul style="list-style-type: none"> <li>➤ <i>Join Problems</i></li> <li>➤ <i>Separate Problems</i></li> <li>➤ <i>Part-Part-Whole Problems</i></li> <li>➤ <i>Compare Problems</i></li> <li>➤ <i>Number Sentences</i></li> <li>➤ <i>Using Countint Strategies and Derived Number Facts</i></li> </ul>	<p><b>CAPSTONE, PART A</b>  <b>(Part of Key Assessment 4)</b>  <b>“See and Describe”</b></p>
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2	4 Jan. 31	<p><b>Analyzing Whole Class Understanding</b></p> <p><i>Describing relationships between or among patterns</i></p>	<p><b><u>Read Before Class</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Multiplication and Division: Problem Types and Children's Solution Strategies</u></b> (pages 49-75), Chapter 4. Children's Mathematics CGI.</li> </ul> <p><b><u>Topics</u></b></p> <ul style="list-style-type: none"> <li>➤ <i>Grouping and Partitioning Problems</i></li> <li>➤ <i>Children's Strategies for Solving Multiplication, Measurement Division, and Partitive Division Problems</i></li> <li>➤ <i>Number Fact Strategies</i></li> </ul> <p><b><u>Survey: Instructional Activities Before Class</u></b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Invented Strategies for Multiplication &amp; Division</b> (pages 180 - 199) Van de Walle</li> <li><input type="checkbox"/> <b>Prepare to discuss and present:</b> Share Reflective Focus Video #1: Utilizing Student Voices</li> </ul> <p><i>What does it mean to create rich, student-centered tasks?</i></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Reflective Focus Video 1</b> <i>Utilizing Student Voices</i></li> <li><input type="checkbox"/> <i>Collect Video and Prepare for Edtpa</i></li> <li><input type="checkbox"/> <b>Plan &amp; Teach 3-5 Consecutive Lesson Edtpa (Weeks 4,5 &amp; 6)</b></li> </ul>
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3	5 Feb. 7	<p>Analyzing Individual Student Work Samples</p> <p><i>Identifying mathematical errors, confusions, and partial understandings</i></p>	<p><u>View :</u> <b>Mathematics Initiative Module</b></p> <p><input type="checkbox"/> <u>Read Before Class</u> Planning, Teaching and <u>Assessing Students with Exceptionalities</u> (pages 71-82) Van de Walle Topics:</p> <ul style="list-style-type: none"> <li>➤ <i>Multitiered Systems of Support</i></li> <li>➤ <i>Planning, Teaching, and Assessing Students with Learning Disabilities</i></li> <li>➤ <i>Implementing Interventions</i></li> <li>➤ <i>Adapting for Students with Moderate or Sever Disabilities</i></li> <li>➤ <i>Planning for Students Who Are Mathematically Gifted</i></li> </ul> <p><u>Read Before Class</u></p> <ul style="list-style-type: none"> <li>• <b>Base-Ten Number Concepts</b> (pages 84-95), Chapter 6. Children's Mathematics CGI.</li> <li>• Beginning to Use Cognitively Guided Instructions and CGI</li> <li>• <b>Multidigit Number Concepts</b> (pages 96-128), Chapter 7. Children's Mathematics CGI.</li> </ul> <p><input type="checkbox"/> <u>Survey:</u> Classroom Activities Developing Whole-Number Place-Value Concepts (pages 152-160) Van de Walle</p>	<p>Collect Video and Prepare for EDTPA</p> <p><input type="checkbox"/> Plan &amp; Teach 3-5 Consecutive Lesson (Weeks 4,5 &amp; 6)</p> <p>Observation Form #1 Due</p>
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3	6 Feb. 14	<p>Analyzing Individual Student Work Samples</p> <p><i>What are strategies to explain students struggles in relation to mathematical concepts?</i></p>	<p><u>View :</u> <b>Mathematics Initiative Module</b></p> <p><u>Read Before Class</u></p> <ul style="list-style-type: none"> <li>□ <b>Differentiating Instructions Teaching Student-Centered Mathematics.</b> (pages 41-53). Van de Walle <ul style="list-style-type: none"> <li>➤ <i>Differentiation and Teaching Mathematics through Problem Solving</i></li> <li>➤ <i>Examples of Differentiated Instruction</i></li> </ul> </li> </ul> <p><b>Fractions and Decimals:</b></p> <ul style="list-style-type: none"> <li>□ Issues in Learning Fractions and Decimals: Rethinking Our Approach</li> <li>□ Equal Sharing Problems &amp; Children Strategies for Solving Them</li> <li>□ From the Classroom: Getting Started with Fractions Empson, B. Susan &amp; Levi, Linda. (2011). <b>Extending Children's Mathematics: Fractions and Decimals</b> (pages 2-46)</li> </ul> <p><u>Survey:</u> Instructional Activities Fractions -pages 202-255</p>	<ul style="list-style-type: none"> <li>□ <b>Reflective Focus Video 2 Differentiating Instruction for Learners with Special Needs, for Gifted and Talented Learners, or for English Language Learners.</b> (Video can also be used for edTPA, if applicable))</li> <li>□ Collect Video and Prepare for EDTPA</li> <li>□ <b>Plan &amp; Teach 3-5 Consecutive Lesson (Weeks 4,5 &amp; 6)</b></li> </ul>
4	7 Feb. 21	<p>Using Evidence to Reflect on Teaching</p> <p><i>How to design and implement an effective lesson that targeted student's misconceptions?</i></p>	<p><u>View :</u> <b>Mathematics Initiative Module</b></p> <p><u>Read Before Class:</u></p> <p><b>Fractions and Decimals</b></p> <ul style="list-style-type: none"> <li>□ Empson, B. Susan &amp; Levi, Linda. (2011). <b>Extending Children's Mathematics: Fractions and Decimals</b></li> </ul>	<p>Collect Video and Prepare for EDTPA</p>

4	8 Feb. 28	<p>Using Evidence to Reflect on Teaching</p> <p><i>Evaluating my teaching effectiveness.</i></p>	<p><u>View :</u>  <b>Mathematics Initiative Module</b></p> <p><u>Read Before Class</u>  Algebra (pages 282-311)  Van de Walle, J., Karp, K., Lovin, L., Bay-Williams, J. (2017). Teaching Student-Centered Mathematics. Teaching Mathematics for Understanding. Vol II. 3<sup>rd</sup> Edition.</p>	edTPA Due Date
5	9 Mar 7	<p>Introduction to Next Generation Science Standards and Physical Education Standards</p> <p>Introduction 5Es Instructional Model</p>	<p><u>Read Before Class</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>From Framework to Next Generation Science Standards</b></li> <li><input type="checkbox"/> <b>5E(z) Guidelines for Designing Research-Informed Science Lesson Sequences</b></li> </ul> <p>Why Integrate the Curriculum?  <u>View Before Class</u>  Animal Patterns: Integrating Science, Math &amp; Art <a href="https://www.teachingchannel.org/videos/teaching-patterns">https://www.teachingchannel.org/videos/teaching-patterns</a></p> <p><a href="http://study.com/academy/lesson/integrated-curriculum-definition-benefits-examples.html">http://study.com/academy/lesson/integrated-curriculum-definition-benefits-examples.html</a></p> <p>Ross Spiral Curriculum: An Interdisciplinary Approach to Science  <a href="https://www.youtube.com/watch?v=hHZhkB0FJik">https://www.youtube.com/watch?v=hHZhkB0FJik</a></p>	<p>Upload Observation #3 Form</p> <p>(USC spring break 3/12)</p>

5	10 Mar 21	<p>Introduction to Next Generation Science Standards and Physical Education Standards</p> <p>Introduction 5Es Instructional Model</p>	<p><u><b>Read Before Class (pages 61-94)</b></u>  <b>Physical Sciences: Where's My Sugar?</b>  <b>Experimenting With Dissolving</b></p> <p>Convergent and Divergent Instructions  <a href="https://instructionaldesignfusions.wordpress.com/2010/10/23/strategies-and-tools-for-divergent-thinking/">https://instructionaldesignfusions.wordpress.com/2010/10/23/strategies-and-tools-for-divergent-thinking/</a></p> <p><u><b>View During Class</b></u></p> <p><a href="https://www.edutopia.org/blog/fueling-creativity-through-divergent-thinking-classroom-stacey-goodman">https://www.edutopia.org/blog/fueling-creativity-through-divergent-thinking-classroom-stacey-goodman</a></p> <p><u><b>View and Discuss During Class</b></u>  <i>Collaborating with Families and Science: Learning Through Nature</i>  <a href="https://www.teachingchannel.org/videos/young-learners-environment">https://www.teachingchannel.org/videos/young-learners-environment</a></p> <p>Share and Discuss Reflective Focus video #3: <b>Convergent and Divergent Discussion</b></p>	<p><b>Reflective Focus Video 3</b>  <b>Convergent and Divergent Discussion</b></p>
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6	11 Mar 28	Life Sciences: Claims, Evidence & Reasoning	<p><b>Life Sciences (pages 95-160): Study Before Class</b></p> <p>Grade 2 - Zoogle Zoology Grade 3 - Animal Behavior in Groups Grades 4-5 Demystifying Decomposers</p> <p><b>Claims, Evidence &amp; Reasoning</b>  <a href="https://www.teachingchannel.org/videos/support-claims-with-evidence-getty">https://www.teachingchannel.org/videos/support-claims-with-evidence-getty</a></p> <p><b>Presentations &amp; Discussion Part B</b>  Discuss/debrief Capstone Part B assignment results.</p>	<p><b>CAPSTONE, PART B Due</b></p> <ol style="list-style-type: none"> <li>Identify a Problem of Practice</li> <li>Identify 2 Peer-Review Research Articles</li> <li>Create an Action Plan</li> </ol>
6	12 Apr 4	Life Sciences: Claims, Evidence & Reasoning	<p><b>View Before Class:</b>  <b>Problem-based Learning:</b>  Perseverance and Problem-solving</p> <p>STEM Lesson IDEAS:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Editable Cars</li> <li><input type="checkbox"/> The Brain Safety Design Challenge: Neuroscience</li> <li><input type="checkbox"/> Persistence in Problem-Solving</li> </ul> <p> <a href="https://www.teachingchannel.org/videos/tch-presents-teaching-problem-solving">https://www.teachingchannel.org/videos/tch-presents-teaching-problem-solving</a>  (58 mins.)</p> <p><b>During Class:</b> Discussion  Reflective Focus video #4: Problem-based Learning</p>	<p><b>Reflective Focus Video # 4</b>  <i>Problem-Based Learning</i> Video can also be used for Capstone Project, if applicable</p>

7	13 Apr 11	Connecting Physical Education: The New PE Runs on Fitness Not Competition	<p><b><u>View Before Class</u></b>  <a href="https://www.edutopia.org/video/new-pe-runs-fitness-not-competition">https://www.edutopia.org/video/new-pe-runs-fitness-not-competition</a></p> <p><b><u>Survey Before Class:</u></b>  California Physical Education Standards</p> <p><b>Physical Education</b>  <b><u>View Before Class</u></b>  Graphing Speed  <a href="https://study.com/academy/lesson/integrated-curriculum-physical-education-subject-matter.html">https://study.com/academy/lesson/integrated-curriculum-physical-education-subject-matter.html</a></p> <p><b>Presentation &amp; Discussion</b>  Part C  Discuss/debrief Capstone Part C assignment results.</p>	<p><b>CAPSTONE, PART C</b>  (Key Assessment 4)</p> <ul style="list-style-type: none"> <li>a. Enact Action Plan</li> <li>b. Implement Teaching Video</li> <li>c. Collect Student Work</li> </ul> <p>Observation #5 Form Due</p>
7	14 Apr 18	Connecting Physical Education: The New PE Runs on Fitness Not Competition	<p><b><u>View Before Class</u></b>  Space Engineering and Real-World Problem  <a href="https://www.teachingchannel.org/videos/engineering-cubesats-design-lesson-boeing">https://www.teachingchannel.org/videos/engineering-cubesats-design-lesson-boeing</a></p> <p>Connecting Physical Education with other Subjects: PE Video Presentations and Discussion</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Create a PE Lesson Plan</li> <li><input type="checkbox"/> Video 8-12 minutes teaching video implementation the PE Lesson Plan</li> </ul>



8	15 Apr 25	Presentation Capstone Projects & Exit Interviews	<u><b>Presentations CAPSTONE Projects</b></u> Discuss/debrief Capstone Part D assignment results. <b>Discussion Careers in Science</b>  <b>Connecting Physical Education with the Academics</b>	Final Assessment: <b>CAPSTONE, PART D</b> a. Summarize Findings Aligned Goals b. Analysis findings c. Implications d. Professional Goals
8	16 May 2	EXIT INTERVIEW	No Class	EXIT INTERVIEW

### Unit 1, Weeks 1-2

#### Week 1

A. Checking-in: *What are your concerns, challenges or questions?*

B. Ice Breaker “Who am I and why am I here?”

C. Problem of the Day

D. Overview EDUC 677 Syllabus:

- Entry/Exit Interviews Weeks 2 and 15. Students will coordinate day/time of Interviews with Guided Teacher (GT).
- Pass out and collect from students signed parent permission forms to video students. ASAP

#### c. (6) Observations (GPT Observations)

Due Dates	Guided Teacher Observations	Place to LMS
Week 5	#1	LMS
Week 7	#2	LMS
Week 9	#3	LMS
Week 11	#4	LMS
Week 13	#5	LMS
Week 15	#6	LMS

#### d. (4) Reflective Focus Videos

Week Due Date	Reflective Focus Video	Place to Upload
Week 4	RFV #1: Utilizing Student Voices	Edthema

Week 6	RFV #2: Differentiating Instruction for Learners with Special Needs, for Gifted and Talented, or for English Language Learners.	Edthema
Week 10	RFV #3: Convergent and Divergent Discussion	Edthema
Week 12	RFV#4: Problem-Based Learning	Edthema

- e. **Key Assessment 3** - Edtpa - Targeting rubrics 2,10, 13 & 15 Upload to TASKSTREAM - Dr. Hu oversees the Edtpa. Due date Week 8.

- f. **Key Assessment 4** - Capstone (A,B,C, &D) List title. Upload Edthema

Due Date	Part s	CAPSTONE PROJECT	Place to Upload
Week 3	A	See and Describe	Edthema
Week 10	B	Analyze Evidence of Learning, Identify Problem of Practice, and Prepare Action Plan	Edthema
Week 13	C	Experiment/ Enact Your Action Plan	Edthema
Week 15	D	Summarize Findings and Discuss Implementations for Future Practice	Edthema

- g. Class Participation

### **Class Activities:**

1. **View and Discuss Mindset:** View <https://www.youcubed.org/>  
What is your mathematics mindset?
2. View teaching videos in small groups and prepare to share the group's big ideas in the main classroom.
  - a. Group 1: Student's View Video Common Core Math & Practice Standards: View <https://www.teachingchannel.org/videos/common-core-state-standards-elementary-school>
  - b. Group 2: Common Core Practice Standard: Precision
  - c. <https://www.teachingchannel.org/videos/exploring-math-practice-standards>
  - d. Owning the Practice Standards
  - e. <https://www.teachingchannel.org/videos/owning-the-common-core>
3. In Grade-Level groups discuss reading **"Assessing for Learning" Chapter 3.** Van de Walle
  - a. For your Capstone Part A collect and bring to class your class set of student work.

- b. Select an assessment tool from Chapter 3.
  - c. Use this assessment tool to analyze the whole class evidence to identify patterns of student learning.
  - d. Be prepared to connect patterns of learning to conceptual understanding, procedural fluency or mathematical reasoning/problem solving in your grade-level group and in the main classroom.
4. **Introduction to Cognitive Guided Practice**  
 Children's Mathematics Chapter 1 (pages 1-6)
- a. Modeling the Action and Relations in Problems
  - b. Candidates will practice modeling problems on pages 2 & 3.

### Next Steps

- 5. Entry Interviews - No class
- 6. Complete Part A Due Week 3
- 7. Complete Edtpa Context of Learning

### Week 2

- 1. **Interviews - No Class**
- 2. Complete Readings **Addition and Subtraction Problem Types**. Children's Mathematical Thinking (2015). Chapters 1-2 (pgs. 7-16) **Due Week 3**
- 3. Complete Reading **Planning, Teaching and Assessing Culturally and Linguistically Diverse Students** - Van de Walle, (pages 55-68). **Due Week 3**

### Unit 2, Weeks 3-4

### Week 3

- 1. What are your challenges, questions or concerns?
- 2. Activity: Review Readings from Van de Walle **Planning, Teaching, and Assessing Culturally and Linguistically Diverse Students**. (pages 55-68). Van de Walle, J., Karp, K., Lovin, L., Bay-Williams, J. (2017). Teaching Student-Centered
  - a. In your grade-level groups discuss what is the goal of equity in teaching and learning?
  - b. Make a list of things to do and things not to do that provide culturally and linguistically diverse students with the opportunity to learn mathematics.
- 3. **Children's Mathematical Thinking**, Chapter 1 (pgs. 7-16)  
**Addition and Subtraction Problem Types**, Chapter 2 (7-16). Carpenter, T., Fennema, E., Franke, M., Levi, L., Empson, S. (2014). Children's Mathematics: Cognitively Guided Instructions.  
 You will practice and discuss Problem Types (see page 14):
  - ☐ Join
  - ☐ Separate

☐ Part-Part-Whole

- ☐ Compare
  - ☐ Number Sentences
4. View and Discuss by grade level **Number Talks**  
 Grade K- 1 <https://www.teachingchannel.org/videos/number-talk-math-lesson-1st-grade>  
 Grade 2 <https://www.teachingchannel.org/videos/number-talk-math-lesson-1st-grade>  
 Grade 3 <https://www.teachingchannel.org/videos/3rd-grade-number-talks>  
 Grades 4-5 <https://www.teachingchannel.org/videos/number-talks-for-assessments>
  5. **Present and Discuss Part A: “See and Describe”**  
 In small groups you will share your video observation of your students and identify learning characteristics.

#### Week 4

1. What are your challenges, questions or concerns?
2. Activity: Discuss Readings **Survey** & Number Talks Multiplication - Identify and Share Instructional Strategy in grade level groups -  
**Discuss: Number Talks Multiplication**  
<https://www.teachingchannel.org/videos/3rd-grade-number-talks>
3. Class Activity **CGI: Multiplication and Division**  
 In grade-level groups you will practice problem-types:
  - a. Grouping and partitioning problems
  - b. Direct Modeling Strategies for Multiplication and Division
  - c. Number Fact Strategies
  - d. Multiplication and Division Word Problems
4. Presentations and Discussion: **Reflective Focus Video - Utilizing Student Voices**  
 You will share and discuss your RFV1. What are ways that you utilized your student voices?
5. **Class Activity: Student Group Discussion** Using Rubric 16 (Edtpa) - *Analyzing Whole Class Understandings*:

#### **Prepare Before Class**

- a. Identify the specific learning objectives measured by the formative assessment in RFV1 lesson: *Utilizing Student Voices*.
  - b. Provide a graphic (chart or table) or narrative that summarizes student learning for the whole class. Be sure to summarize student learning for all evaluation criteria.
  - c. **During class:** Candidates’ presentation of whole class understanding include a summary chart, discussion of the patterns across the whole class relative: focus on students’ conceptual understanding, procedural fluency and mathematical reasoning and problem-solving.
6. **ETPA:** Plan & Teach 3-5 Consecutive lessons Weeks 4,5 or 6

#### **NEXT STEPS**

1. Complete readings for Van de Walle - *Planning, Teaching and Assessing Students with Exceptionality* and CGI - Base-Ten Number Concepts & Multidigit Number Concepts
2. Prepare an analysis on your 3-Focus Students.

### Unit 3, Weeks 5-6

#### Week 5

3. What are your challenges, questions or concerns?
4. Group Activity **Reading Review: *Planning, Teaching and Assessing Students with Exceptionality*** (pages 71-82) Van de Walle
5. **CGI Activity: Base-Ten Number Concepts & Multidigit Number Concepts**
6. **Grade Level Discussion: Survey Whole-Number Place Values Class Activities** (pages 152-169) Van de Walle
7. **Group Activity: Analyzing Individual Student Work Samples - 3 Focus Students** Using Rubric 17 (Edtpa): USE WEEK 4 COLLECTION STUDENT WORK  
**PREPARE BEFORE CLASS**
  - a. Identify one area where students struggle mathematically.
  - b. Select 3 student work samples that represent the struggle in this area.
  - c. These students will be your focus students for this task.
  - d. At least one of the focus students must have specific learning needs (IEP, ELL or struggling student in reading).
  - e. Analyze the 3 students work samples and describe the student struggles as they relate to the underlying understanding and concepts.
  - f. Cite specific evidence from the work samples in relationship to mathematical errors, confusions, and partial understanding.**DURING CLASS**
  - g. In grade level groups: (1) Discuss the analysis of your 3 students work samples (2) Describe your students struggles as they relate to the underlying understanding and concepts
8. **EDTPA** - Plan & Teach 3-5 Consecutive lessons Weeks 4,5 or 6

#### NEXT STEPS

#### Week 6

1. What are your challenges, questions or concerns?
2. Group Activity Reading Review Discussion: (1) Readings Formative Assessment/ Van de Walle pages 41-53 (2) View **Formative Assessment: Understanding Fractions** <https://www.teachingchannel.org/videos/formatively-assess-fraction-knowledge-sbac> & (3) Survey Instructional Activities (pages 202-274)
3. **Lesson Activity Investigation: Fractions & Decimals, Extending Children's Mathematics** (pages 2-46) (Empson & Levi)  
**Read Before Class**
  - *Issues in Learning Fractions and Decimals: Rethinking Our Approach*
  - *Equal Sharing Problems & Children Strategies for Solving Them*
  - *From the Classroom: Getting Started with Fractions*

In grade-level groups, you will solve a series of problems by creating model representations; identify problem-types, problem structure and language demands of the problem.

4. Student Presentations Reflective Focus Video #2: **Differentiating Instructions for Learners with Special Needs, for Gifted and Talented Learners, or for English Language Learners**
5. Group Discussion **Survey** Instructional Activities Fractions & Decimals
6. **Group Discussion: Re-Engagement** - Using Rubric 18 (Edtpa) Using Evidence to Reflect on Teaching:  
In small groups, discuss how you analyze the effectiveness of the strategies you used during the *Re-engagement lesson* to develop students mathematical understanding in the identified area of struggle. Consider the changes in student's mathematical understanding or misconceptions(s) in relation to the identified area of struggle when describing the effectiveness of the re-engagement lesson. Be prepared to share in main classroom.
7. **EDTPA** -Plan & Teach 3-5 Consecutive lessons Weeks 4,5 or 6

## Unit 4, Weeks 7-8

### Week 7

1. What are your challenges, questions & concerns?
2. **Activity Investigation Lesson:** Fractions & Decimals. Epson & Levi  
**Read Before Class:**  
Multiple Groups Problems and Children's Strategies for Solving Them  
Understanding Fraction Equivalence and Order (Chapter 6)
3. Grade Level Discussion: Using Evidence to Reflect on Teaching - ETPA Rubric
4. Teacher and Parent Partnership in Learning  
**View:**
  - **The ABC's of Parent Involvement** <https://www.teachingchannel.org/videos/getting-parents-involved>

### Week 8

1. *What are your challenges, questions & concerns?*
  2. **Discussion Activity:** Using Evidence to Reflect on Teaching
    - a. In grade-level groups, use the data from your whole class assessment and your 3 Focus students assessment to discuss your Teaching Reflections.
    - b. Discuss the success and challenges of your Re-engagement lesson specially focusing on the 3 Focus Students.
  3. **Activity Investigation Lesson:** Fractions & Decimals. Epson & Levi
- E. Relational Thinking: Connecting Fractions and Algebra (Chapter 4)  
F. Understanding Decimals (Chapter 7)  
4. Upload **EDTPA**

## Unit 5, Weeks 9-10

### Week 9 (Science and Physical Education)

1. What are your challenges, questions & concerns?
2. Introduction to this half of the course (Weeks 9-16)
3. **Introduction to the NGSS**  
**Activity:** In grade level groups you will view (2) videos and discuss "*What are the meanings of the Core Ideas, 3-Dimensions and Crosscutting Concepts and how can these ideas fit into your daily lesson planning?*" A notetaker should copy questions and each group is responsible to present their questions to the larger group.

Group 1 - Grades PreK, K & 1 A Vision for K-12 Science Education  
Ideas look like at your grade levels? <https://www.teachingchannel.org/videos/next-generation-science-standards-achieve> AND Crosscutting Concepts <https://www.teachingchannel.org/videos/crosscutting-concepts-achieve>

Group 2 - Grades 2 & 3 Disciplinary Core Ideas <https://www.teachingchannel.org/videos/disciplinary-core-ideas-achieve> AND Crosscutting Concepts <https://www.teachingchannel.org/videos/crosscutting-concepts-achieve>



### Group 3 - Grades 4 & 5

Introduction: Next Generation Standards - The Three Dimensions of NGSS  
<https://www.teachingchannel.org/videos/science-engineering-practices-achieve> AND Crosscutting Concepts <https://www.teachingchannel.org/videos/crosscutting-concepts-achieve>

#### 4. **5Es Teaching Demonstration**

In your assigned readings, the 5Es was discussed. View the video lessons below, discuss your observations in small groups and be prepared to present your questions in the main classroom.

##### **A. Water Displacement (8.30 minutes)**

<https://www.teachingchannel.org/videos/measuring-volume-lesson>

##### **B. Physical Sciences: Exploring Physical vs Chemical Changes (8.43 minutes)**

<https://www.teachingchannel.org/videos/teaching-physical-and-chemical-changes>

#### 4. **Group Investigaton**: SPEEDOMETRY- Introduction to the 5Es

Grade 4

<http://origin2.hotwheels.mattel.com/en-us/explore/speedometry/index.html>

Grade K

<http://origin2.hotwheels.mattel.com/en-us/content/images/speedometry/SpeedometryKindergartenCurriculumCCSS.pdf>

#### **Before Class:**

- ☐ DOWNLOAD SPEEDOMETRY CURRICULUM (Grade 4 & Grade K)
- ☐ Bring to class 1-2 toy cars
- ☐ Ramps (hotwheels), books or flat surface

#### **During Class**

**The 5 Es Cognitive Learning Process: Unit 1 Speed Ramps**

**Learning Objective:** Candidates will investigate potential and kinetic energy by introducing different variables (e.g., mass or weight, height, other materials). Students will measure the distance cars travel caused by introducing different variables and design a way to record their data.

Candidates will follow the instructors facilitation of the Speedometry: Lesson Speed Ramps Grade 4 (pages 5-37)

#### **5Es Process**

1. Engage
2. Explore
3. Explain

#### 4. Elaborate

## 5. Evaluate

### Next Steps:

- **Reflective Focus Video 3** Lesson Plan & Presentation Due: Convergent and Divergent Discussion (upload to Edthena)
- **Convergent and Divergent Instructions** Read Before Class:
- (1) <https://instructionaldesignfusions.wordpress.com/2010/10/23/strategies-and-tools-for-divergent-thinking/>  
(2) <https://www.edutopia.org/blog/fueling-creativity-through-divergent-thinking-classroom-stacey-goodman>

### Week 10

1. *What are your questions, concerns & challenges?*
2. **Discussion** of Convergent and Divergent Instructions  
Candidates will provide examples of both Convergent and Divergent Instructions
3. **Presentations and Discussion of Reflective Video Focus 3:** Convergent and Divergent Instructions  
In small groups, Candidates will reflect on their teaching video. What were the challenges? How did you measure the effectiveness of your teaching strategies?
4. **Where's My Sugar (pages 79-94)**  
In grade-level groups, candidates will investigate *Experimenting with Dissolving*. Each group will complete Lab Reports 2A, 2B and 2C. Modify the Lab Experiences to your grade level. Groups will report to back to whole class.
5. **Class Lab - Speedometry Lesson: MINI COLLISION COURSE Unit (pages 38-68)**  
Lab Activities will be facilitated by the instructor using the 5Es process.

### Next Steps:

1. Prepare for Presentation Part C : Action Plan and Implementation Teaching Video (Key Assessment 4)
2. Introduction Physical Education: Survey PE Standards

## Unit 6 Weeks 11-12

### Week 11

1. *What are your concerns, questions and challenges?*
2. View Claims, Evidence & Reasoning and create questions to bring back to the larger group.  
Claims, Evidence & Reasoning  
<https://www.teachingchannel.org/videos/support-claims-with-evidence-getty>
3. **Life Science - In grade levels, investigate the following experiments and**

**create a Claims, Evidence & Reasoning Chart:**

- a. Grades K-2 Zoogly Zoology
  - b. Grade 3 - Animal Behavior in Groups
  - c. Grades 4-5 Demystifying Decomposers
4. **Presentations & Discussion Part B**  
Discuss/debrief Capstone Part B assignment results.

## Week 12

1. *What are your concerns, questions and challenges?*
2. In grade-level groups (1) survey your grade-level Physical Education Standards (2) Compare your grade level with the other K-5 grade standards and (3) discuss the similarities and differences. <https://www.cde.ca.gov/be/st/ss/documents/pestandards.pdf>
3. **View: The New PE Runs on Fitness Not Competition**  
<https://www.edutopia.org/video/new-pe-runs-fitness-not-competition>  
Discuss in small groups: What is the PE plan at your school site? How does this plan align with the CA PE Standards? How is this similar/different to the PE you experience when you were in K-5 grades. Larger discussion in the main classroom.
4. In grade-level groups, create a “Read Around” using the article: **Graphing Speed**.  
  
<https://www.edutopia.org/video/new-pe-runs-fitness-not-competition>  
How would you integrate this activity into one of your subject matters? Provide details.
5. **Class Lab: Speedometry Lesson Grade K (Upload Curriculum Unit)**  
Instructor will facilitate the Speedometry Lesson Grade K  
Unit 1: Push & Pull <http://origin2.hotwheels.mattel.com/en-us/explore/speedometry/index.html>

## Unit 7 Weeks 13-14

## Week 13

1. *What are your concerns, challenges and questions?*
2. **View: The New PE Runs on Fitness Not Competition**  
<https://www.edutopia.org/video/new-pe-runs-fitness-not-competition>  
Discuss in small groups: What is the PE plan at your school site? How does this plan align with the CA PE Standards? How is this similar/different to the PE you

experience when you were in K-5 grades. Larger discussion in the main classroom.

3. Enactment and Discussion of PE Lesson Plan (upload lesson plan on the LMS).  
Teach PE Lesson.
4. In grade-level groups, create a “Read Around” using the article: ***Graphing Speed***.

<https://www.edutopia.org/video/new-pe-runs-fitness-not-competition>

How would you integrate this activity into one of your subject matters? Provide details.

5. View and Discuss

#### **Space Engineering and Real-World Problem**

<https://www.teachingchannel.org/videos/engineering-cubesats-design-lesson-boeing>

6. Class Lab: **Speedometry Lesson Grade K (Upload Curriculum Unit)**  
Instructor will facilitate the Speedometry Lesson Grade K  
**Unit 2: Force & Movement**

<http://origin2.hotwheels.mattel.com/en-us/explore/speedometry/index.html>

#### **7. Next Steps**

- a. Week 14 Prepare to discuss and present Capstone, Part C (Key Assessment 4)
- b. Read: Earth and Space Sciences - Water Use and Mis-Use (pages 163-180) Grade 5

#### **Week 14**

1. *What are your concerns, challenges and questions?*
2. Present and Discuss Physical Education Video Lessons in Groups.
  - ☐ Discuss in grade-level groups: Earth and Space Sciences - Water Use and Mis-Use (pages 163-180) Grade 5
3. **Next Steps:**
  - a. Prepare to present CAPSTONE, Part D
  - b. Summarize Findings Aligned with Goals.
  - c. Analyze findings.

- d. What are the implications of your findings?
- e. What are your Professional Goals?

## **Unit 8, Week 15-16**

### **Week 15**

1. *What are your concerns, challenges and questions?*
2. **Presentation of CAPSTONE, Part D**
  - a. Summarize Findings Aligned with Goals.
  - b. Analyze findings.
  - c. What are the implications of your findings?
  - d. What are your Professional Goals?

### **Next Steps:**

Prepare for **Exit Interview** - no class Week 16

- a. Reserve time for Exit Interviews between Guided Teacher, Candidate and USC Professor
- b. Attend and participate in Interviews.

### **Week 16: Exit Interviews - No Class**