George Mason University
EDCI 552: MATH METHODS FOR THE ELEMENTARY CLASSROOM (3)
Summer 2010

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I. Course Description

An introduction to methods for teaching all children including those from non-mainstreamed populations developmentally appropriate topics in arithmetic, geometry, algebra, probability and statistics. This is a hands-on, activity, workshop-oriented experience. Students work with manipulatives and technologies to explore mathematics, solve problems, and learn ways to teach mathematics content to children. Field experience is required.
Prerequisite: Admission to the Elementary Education Licensure Program

II. Student Outcomes

This course will enable students to:

A. Know what constitutes the essential topics in mathematics of the modern early and intermediate grades school program.
B. Identify and use selected manipulatives and technology such as Linking Cubes, Attribute Blocks, Geoboards, Base-10 Blocks, Fraction Circles, Tangrams, calculators, and computers to teach appropriate mathematics content topics in the early and middle grades.
C. Identify and use various instructional strategies and techniques (cooperative and peer group learning, activity centers, laboratories and workshops, teacher-directed presentations, etc.) to teach mathematical content topics appropriate for the early and intermediate grades to all children including those from non-mainstreamed populations.
D. Identify and use alternative methods for assessing students' work in mathematics in the early and intermediate grades.
E. Solve problems in the mathematical content areas of logic, number theory, geometry, algebra, probability, and statistics appropriate for adaptation to the early and intermediate grades.
F. Know and explain what is a standards-based mathematics curriculum, what are the key elements of the National Council of Teachers of Mathematics Principles and Standards for School Mathematics, and what are the key elements of the Virginia Standards of Learning for Mathematics.

III. Relationship to Program Goals and Professional Organizations
Student Outcomes Referenced to Selected National Standards

Course Student Outcomes (above)	NCTM Principles and Standards	ISTE NETS	INTASC
A	S1, S2, S3, S4, S5	SI	P1, P7
B	S10	SII	P1, P2, P6
C	P1, P2, P3, P4, P6	SII	P1, P2, P3, P4
D	P5	SIV	P3, P8
E	S1, S2, S3, S5, S6	SI	P4, P6
F	S1-10, P1-6	SI	P1, P7, P9

Key:
NCTM Principles and Standards = National Council of Teachers of Mathematics Principles and Standards for School Mathematics (2000), where P = principles and S = standards.
ISTE NETS = International Society for Technology in Education National Education Technology Standards 2000, where S = standard number

INTASC = Standards for Licensing Beginning Teachers, where P = principles

IV. Nature of Course Delivery

In this course we will begin an inquiry into mathematics teaching and learning that will guide you in your first teaching job and give you the tools that will enable you to continue to inquire and learn as part of your work as a teacher. Class sessions will be interactive and will include a variety of hands-on experiences with concrete and virtual manipulatives appropriate for elementary school mathematics. We will explore the teaching of mathematics, investigating both *what* to teach and *how* to teach it. We will explore what it means to do mathematics and what it means to understand mathematics through individual, small group, and large group mathematical problem solving. We will investigate ways to represent understandings of mathematical concepts, communicate reasoning about mathematical ideas, and construct mathematical arguments. We will investigate and read about ways children might represent mathematical concepts, looking at ways to help children build connections and see relationships among mathematical ideas. We will explore characteristics of a classroom environment conducive to mathematical learning by reading and discussing the importance of mathematical tasks, mathematical tools, the roles of teachers and students, and the assessment of mathematical understanding.

V. Required Texts & Readings

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2010). *Elementary and Middle School Mathematics: Teaching Developmentally.* (7th edition) New York: Allyn & Bacon.

VI. Course Requirements and Assignments

The assignments across the semester are intended to further your understandings of what it means to teach, learn, and assess mathematics in light of current reforms in mathematics education. All assignments are to be turned in to your instructor on time. **LATE ASSIGNMENTS**: Late work will not be accepted for full credit. If the student makes prior arrangements with the instructor, assignments turned in late will receive a 10% deduction from the grade per late day or any fraction thereof (including weekends and holidays).

Mathematics Content/Pedagogy Responses (30%)
Individual Student Assessment (30%)
Lesson Plan Summary Reports #1 & #2 (20%)
Presentation & Participation Assignments (20%)

A. Mathematics Content/Pedagogy Responses **(30%)**

The Mathematics Content/Pedagogy Responses in this course will consist primarily of multiple choice and short response questions that focus on mathematics content in the elementary grades, with some questions focusing on methodological content. Throughout the semester, brief content-specific homework assignments will assist you in reviewing important mathematics appropriate for the elementary grades. The Math Content and Pedagogy Responses will be scheduled for the start of the class session immediately following the in-class session in which the topic was discussed.

If you must be absent from a scheduled Mathematics Content/Pedagogy Responses (with instructor approval), you must contact the instructor personally to make alternative arrangements to take the Mathematics Content/Pedagogy Responses.

B. Individual Student Assessment (30%) – <u>Performance Based Assessment for the Course</u>

In order to plan effective instruction, you will need to know how to assess children's knowledge of mathematical concepts. One way to assess children's thinking is a diagnostic assessment. This assignment has two parts: (1) Design a plan for the assessment, assessing a specific mathematics topic using concrete, pictorial and abstract representations, (2) Conduct the assessment with a child and write a report describing the outcome of the assessment. Based upon feedback

from the instructor on your plan, you may make modifications to the final plan and report. **(10% PLAN; 20% FINAL REPORT)**

C. Two Lesson Study Plan Summaries (20%)

You are required to plan, teach, and complete a formal summary for two mathematics research lessons during your field placement (SUMMER CAMP) The first lesson may be taught in a small group setting, while the other lesson must include the entire class. The format for designing your mathematics lessons is found in your PS Manual. Try to avoid the *overuse* of worksheets. Integrate the use of mathematics tools (manipulatives, calculators, computers) and representations (concrete, pictorial, symbolic) to provide children with an interactive, conceptually-based mathematics experience. The lesson plan summaries are a three-phase process: (1) Design the lesson plan, (2) Teach the lesson in your classroom, and (3) Collect and report evidence of student learning from the lesson in a reflection.

D. Presentation & Participation Assignments (20%)

A variety of presentation and participation activities will be integrated into our class sessions this semester. You will share ideas on a meaningful lessons/technology/resource (brief presentations) during class sessions. You will participate in class activities such as measurement centers during class time. These assignments require your active engagement in class sessions; therefore, there is no opportunity to "make-up" these assignments.

Attendance. It is your responsibility to attend all class sessions. You are held accountable for all information from each class session whether you are present or not. Please report your reasons for any absences to the instructor in writing.
Tardiness. It is your responsibility to be on time for each class session. Please report your reasons for any tardiness to the instructor in writing.

	LEVEL	**OF**	**PERFORMANCE**	
ELEMENT	*Distinguished (9 – 10 points)*	*Proficient (8 points)*	*Basic (6 - 7 points)*	*Unsatisfactory (1 - 5 points)*
Attendance & Participation	The student attends all classes, is on time, is prepared and follows outlined procedures in case of absence. The student actively participates and supports the members of the learning group and the members of the class. Presentations demonstrate a deep knowledge of student error patterns as well as implications for teaching.	The student attends all classes, is on time, is prepared and follows outlined procedures in case of absence; the student makes active contributions to the learning group and class. Presentations demonstrate sufficient knowledge of student error patterns as well as implications for teaching.	The student is on time, prepared for class, and participates in group and class discussions. The student attends all classes and if an absence occurs, the procedure outlined in this section of the syllabus is followed. Presentations demonstrate minimal knowledge of student error patterns	The student is late for class. Absences are not documented by following the procedures outlined in this section of the syllabus. The student is not prepared for class and does not actively participate in discussions. Presentations are lacking knowledge of student error patterns and connections to teaching.

VII. Evaluation Schema

Determination of the Final Grade:

Graduate Grading Scale

A	93%-100%	B+	87%-89%	C	70%-79%

A-	90%-92%	B	80%-86%	F	Below 70%

The mathematics education courses in GSE's Elementary Education Program integrate pedagogy and mathematics content appropriate for the elementary school grades. For students to earn a grade of A in the course, they must demonstrate excellence in *both* the pedagogical knowledge and the content knowledge of the mathematics appropriate at their level of teaching. Thus, the grading in the course is structured to help evaluate fairly student excellence in both areas. Exam work focuses primarily on ascertaining student excellence in handling mathematics content appropriate for the elementary grades, and represents 50% of students' grades. Pedagogical knowledge is ascertained primarily from readings, assignments and participation in the course, and represents 50% of students' grades. Therefore students who demonstrate excellence in both pedagogical knowledge and content knowledge receive grades of A.

IX. Course Schedule **To be distributed in class as a separate handout.**

X. UNIVERSITY POLICIES

The university has a policy that requests students to turn off pagers and cell phones before class begins.

The College of Education and Human Development (CEHD) expects that all students abide by the following:

HONOR CODE
To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of George Mason University and with the desire for greater academic and personal achievement, George Mason University has set forth a code of honor that includes policies on cheating and attempted cheating, plagiarism, lying and stealing. Students must follow the guidelines of the University Honor Code. See http://www.gmu.edu/catalog/apolicies/#TOC_H12 for the full honor code.

INDIVIDUALS WITH DISABILITIES POLICY
The university is committed to complying with the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 by providing reasonable accommodations for applicants for admission, students, applicants for employment, employees, and visitors who are disabled. Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See www.gmu.edu/student/drc or call 703-993-2474 to access the DRC.

ATTENDANCE POLICY
Students are expected to attend the class periods of the courses for which they register. Although absence alone is not a reason for lowering a grade, students are not relieved of the obligation to fulfill course assignments, including those that can only be fulfilled in class. Students who fail to participate (because of absences) in a course in which participation is a factor in evaluation, or students who miss an exam without an excuse, may be penalized according to the weighted value of the missed work as stated in the course syllabus (GMU University Catalog, pg. 32).

PROFESSIONAL BEHAVIOR & DISPOSITIONS
Students are expected to exhibit professional behavior and dispositions. See www.gse.gmu.edu for a listing of these dispositions.

Students must agree to abide by the university policy for Responsible Use of Computing. See http://mail.gmu.edu and click on Responsible Use of Computing at the bottom of the screen.

Approved March 2004

Lesson Plan GRADING REQUIREMENTS

GENERAL REQUIREMENTS:

***** The lesson plans must be handed in on time. (If the lesson is not handed in on time, subtract 10% from the total score on the report per late day.)

* Your Clinical Teacher may choose to write a formal observation of one of your lessons, or you may ask him/her for feedback on your lesson.

* You must integrate manipulatives, literature, and/or technology into your lessons.

The LESSON

Objectives

The objectives clearly state what students will do during the lesson.
The objectives clearly state the mathematics content/essential understandings of the lesson.
The objectives are tied to state/national standards.
The objectives are tied to the assessment; this information is provided in the assessment section of the report.

Materials

A list of materials used during the lesson is provided.
A copy of the materials is included with the lesson.
A variety of materials are used in each lesson (manipulatives, technology, etc.).
The lesson integrates the use of mathematics tools (manipulatives, calculators, computers) and/or representations (concrete, pictorial, symbolic).
The teacher creates materials for the lesson.
Appropriate materials are selected for the concepts being taught.
The lessons do not *overuse* worksheets.

Procedure

The lesson is substantive in length, breadth, and depth.
Any questions and mathematics content the teacher uses during the lesson are included in the procedures.
The procedures thoroughly and completely outline what the teacher will do during the lesson; How did you present the lesson?
The procedures are in a bulleted list, approximately 1-2 pages in length.
The procedures provide enough detail to allow another person to teach the lesson.
* LINK- The procedures include an introduction for activating prior knowledge.
* ENGAGE AND EDUCATE- The procedures show that students are engaged in doing mathematics during the lesson.
* ACTIVE LEARNING- The procedures thoroughly and completely outline what the students will do during the lesson. Estimated times for each phase are provided in parentheses.
*REFLECT-The procedures include a plan for closing the lesson and checking for understanding.

* NOW and THEN- Connecting to other concepts

Assessment / Work Samples
The assessment used during the lesson is described in approximately ½ -1 pages.
The description of the assessment is clear enough that another person could conduct the assessment; What was the assignment?
The assessment describes what the teacher does to assess the students.
The assessment describes in detail what the students do to demonstrate their understanding of the concept.
An example of the assessment conducted during the lesson is attached to provide documentation of what students did during the lesson (i.e., written work, drawings, worksheets, photographs, checklists, anecdotal records).
The objectives are tied to the assessment; this information is provided in the assessment section of the report.

Differentiation Gearing up and gearing down
A list of adaptations for individual students is included.
Specific information must be provided on individual students in the class and the accommodations made for those children. (General comments are **not** appropriate for this requirement.)

Reflection
The reflection is 1 -2 pages in length for any lesson you teach in the classroom.
A portion of the reflection describes the mathematics teaching and learning that occurred during the lesson and how it related to the lesson plan prepared ahead of time.
A portion of the reflection discusses those elements of the lesson that went well and those that did not.
A portion of the reflection discusses at least three changes or improvements that you would make to the lesson if you were teaching it again.
A portion of the reflection identifies one important idea you learned about teaching and learning mathematics from the lesson. (Ideas that focus on behavior management strategies are **not** acceptable for this requirement.)
A portion of the reflection identifies one important teaching skill you plan to work on the next time you teach a mathematics lesson.

SCORING RUBRIC FOR LESSON PLANS

Criteria	Expectations	Points Awarded/Points Possible
Objectives	1. The objectives clearly state what students will do during the lesson. 2. The objectives clearly state the mathematics content/essential understandings of the lesson and the objectives are tied to state/national standards.	_____ (10)
Materials	1. A list of materials used during the lesson is provided. 2. Copies of any handouts or worksheets used during the lesson are included. 3. The lesson integrates the use of mathematics tools (manipulatives, calculators, computers) and/or representations (concrete, pictorial, symbolic). 4. Appropriate materials are selected for the concepts being taught. 5. The lesson does not *overuse* worksheets.	_____ (5)
Procedure	1. The lesson is substantive in length, breadth, and depth. 2. The procedures thoroughly and completely outline what the teacher will do during the lesson. How did you present the lesson? 3. The procedures thoroughly and completely outline what the students will do during the lesson. 4. The procedures show that students are engaged in <u>doing</u> mathematics. 5. Estimated times for each phase are provided in parentheses. 6. The procedures provide enough detail to allow another person to teach the lesson. 7. Any questions or mathematics content the teacher uses during the lesson are included. 8. The procedures include an introduction for activating prior knowledge and a plan for closing the lesson.	_____ (40)
Differentiation	1. A list of adaptations for individual students is included. 2. Specific information must be provided on individual students in the class and the accommodations made for those children. (General comments are **not** appropriate for this requirement.)	_____ (10)
Assessment	1. The assessment is tied to the lesson objectives. 2. The assessment is described in enough detail that another person could conduct the assessment. 3. The assessment describes what the teacher does to assess the students. 4. The assessment describes anticipated student responses. What will students do to demonstrate their understanding of the mathematics? What student misconceptions do you predict?	_____ (10)
Work Samples	1. An example of the assessment conducted during the lesson is attached to provide documentation of what students did during the lesson (i.e., written work, drawings, worksheets, photographs, checklists, anecdotal records). 2. Brief analysis of the outcome of the assessment.	_____ (5)
Reflection	1. The reflection describes the mathematics teaching and learning that occurred during the lesson and how it related to the lesson plan prepared ahead of time. 2. The reflection discusses those elements of the lesson that went well and those that did not. 3. The reflection discusses at least three changes or improvements that you would make to the lesson if you were teaching it again. 4. The reflection identifies one important idea you learned about teaching and learning mathematics as well as one important teaching skill you plan to work on the next time you teach a mathematics lesson. (Ideas that focus on behavior management strategies are **not** acceptable for this requirement.)	_____ (20)
	Total Points	_____ (100)

Individualized Student Assessment Guidelines
(Performance Based Assessment for the Course)

PLAN

Student Assessment PLAN

The Child:
Describe the child you plan to assess. Include information you gathered about the child (grade level, age, gender, race, and academic ability level). What do you know about the child's level of understanding about the topic *before* the assessment?

The Mathematics Concept:
Select one specific mathematics concept to assess during the assessment. Examples of concepts might include patterns, sorting, addition of whole numbers, division of fractions, finding averages, percent, geometric shapes, or length measurement. Tell why this concept is appropriate for this child at this particular grade level.

Different Forms of Representation:
During the assessment, assess the child using three different forms of representation. Identify the three different forms of representation you will use during the assessment with at least one example in each form. *Concrete* representations include manipulatives, measuring tools, or other objects the child can manipulate during the assessment. *Pictorial* representations include drawings, diagrams, charts, or graphs that are drawn by the child or are provided for the child to read and interpret. *Symbolic* representations include numbers or letters the child writes or interprets to demonstrate understanding of a task.

Tasks & Questions:
Design tasks and questions that use three different forms of representation (concrete, pictorial, abstract symbols) to diagnose the child's understanding of ONE basic concept. Go beyond the basic level of determining the child's factual knowledge of the concept by asking questions that determine how much the child understands about the concept. For example, suppose you are assessing the concept of ADDITION. (1) Create several tasks where the child uses concrete manipulatives to demonstrate her understanding of addition; ask questions about the child's understanding of the addition tasks with manipulatives. (2) Create several tasks where the child is asked to create or interpret drawings to demonstrate her understanding of addition; ask questions about the child's understanding of these tasks with pictorial models; (3) Create several tasks where the child uses abstract symbols (and letters) to demonstrate her understanding of addition; ask questions about the child's understanding of these addition tasks using the symbols.

The plan should be typed.

Individual Student Assessment Guidelines
(Performance Based Assessment for the Course)
REPORT

Student Work Samples:
Collect and document three different forms of representation (concrete, pictorial, abstract symbols) during the assessment to elicit the child's level of understanding. The report must include samples of the child's computations, writings and drawings, as well as a description of how the child used concrete objects during the assessment or photographs of the child's work.

Question & Response Assessment Excerpts:
Type key excerpts from the assessment. Type only those questions and responses that pertain to mathematics. Be sure to include your questions and the child's responses. Indicate what you said and what the child said by using T for you (the teacher) and C for the child.

Questioning Competence:
The questions and follow-up questions that you use during the assessment will be evaluated. You will be evaluated on the *quality* and the *types* of follow-up questions you use during your interaction with the child. Your textbooks and readings provide direction on the types of questions that are appropriate in an assessment and that go beyond factual information to deeper understanding.

Evaluation of Child's Mathematical Knowledge:
Write an evaluation of the child's mathematical knowledge in the content area. Use evidence from the assessment to support your conclusions. Use your textbook to help you describe the specific types of behaviors and verbalizations you observed using specific mathematical terms. For example, if you conclude that the student has an understanding of addition of fractions with like denominators, you should base this on evidence that you present that shows the child was able to represent $\frac{3}{5}$ and $\frac{4}{5}$ with fraction pieces (concrete), and/or the child used a drawing to find the sum (pictorial), and/or the child computed the answer with symbols (abstract). Give specific examples of the child's responses to support your statements.

Instructional Plan:
Develop a suggested instructional plan for the child. Your assessment of the child's thinking should give you some information for planning instruction. Your suggestions should be based on what you learned about the child during the assessment. Many general suggestions can be valuable for children. However, your recommendations should relate to specifics. For example, if you assessed basic division concepts and you suggest that the instructional plan for the child should include more manipulatives, that would be an important teaching strategy, but it would be too general. You should be more specific about why and how manipulatives might be used. Example: "The student had difficulty making 3 equal groups from a set of 21 chips; therefore, the student should be given more experiences with grouping and partitioning manipulatives in sets of 15 to 30 to develop both the measurement and partitive concepts of division."

Reflection of the Assessment Process:
Comment on the assessment process. How long did the assessment last? What did you learn about assessment techniques? What did you learn about your ability to create mathematics questions and tasks for this concept? If you were to conduct the assessment with another child, would there be any changes in your questions, either the order or the level of difficulty, or the materials you had available for the child to use? Why or why not? What have you learned about how children learn mathematics from this assessment? How might a classroom teacher use the diagnostic mathematics assessment to assess children?

The report should be typed.

RUBRIC FOR ASSESSMENT REPORT

Criteria	Exceeds Requirements (A)	Meets Requirements (A-,B+,B)	Needs Improvement (C)	Inc.	Weight
Is the required information present about the child assessed?	5 In addition to the required information, the Report includes information about the child's performance in other academic, social, or behavioral areas. Cite references.	4 3 2 The Report includes the child's grade level, age, gender, race, academic ability level, and the child's level of understanding about the mathematics concept.	1 One or more of the required descriptive items about the child is missing.	0	x .05 =
Has the teacher selected one specific mathematics concept and assessed the concept using three different forms of representation (concrete, pictorial, abstract)?	5 Information on age-appropriate variations of the mathematics concept was gathered in preparation for the assessment. One math concept is clearly described and mathematically accurate. Three different forms of representation, with different examples in each form, are designed for use in interesting and creative ways. Connections are made among representational forms. Cite references.	4 3 2 One age-appropriate mathematics concept is selected, mathematically accurate, and clearly described. Three different forms of representation are described and used appropriately to assess the mathematics concept. Different examples may be used within each representational form.	1 One or more mathematics concepts are selected. They may not be age-appropriate. The Report is missing one or more forms of representation.	0	x .10 =
Do the tasks and questions match the specific mathematics concept being assessed? Is there variety in the tasks and questions used for each of the three different forms of representation?	5 In addition to the tasks/questions being aligned with the math concept, there are questions that differentiate and provide extensions for different levels of student performance. In addition to the variety of tasks/questions for each of the three forms of representation, tasks that show creativity and will be motivating for a child are included. Cite references.	4 3 2 The tasks and questions designed for the assessment are aligned with the mathematics concept being assessed. There are a variety of tasks and questions for each of the three forms of representation.	1 The tasks and questions designed for the assessment are not clearly aligned with the mathematics concept being assessed. The Report is missing tasks/questions that address one or more of the forms of representation.	0	x .15 =
Are the child's work samples included with three different forms of representation present in the work samples?	5 In addition to the variety of work samples from the child showing examples in each of the three forms of representation, a creative way of providing an explanatory overview of the child's work is included.	4 3 2 There are a variety of work samples from the child included showing examples in each of the three forms of representation. (concrete, pictorial, abstract)	1 There is only one work sample in each of the three forms of representation or work samples from one form of representation are missing.	0	x .10 =
Is the required question and response assessment excerpts present?	5 The Report includes key excerpts from the mathematics assessment that includes descriptive information on both the behaviors and the actual verbalizations that occurred during the assessment.	4 3 2 The Report includes excerpts of the mathematics assessment using the teacher and the child's actual verbalizations from the assessment (T for teacher; C for child).	1 The Report includes excerpts of the mathematics assessment, but some parts of the assessment conversation are limited.	0	x .15 =
Do the initial and follow-up questions used by the teacher demonstrate variety and higher levels of questioning? Are specific follow-up questions used appropriately?	5 The transcript shows that during the assessment, the teacher used a variety of questions to encourage the child to express his/her thinking, used many higher-level questions to encourage deeper thinking and responses from the child, and used specific follow-up questions to probe for understanding.	4 3 2 The transcript shows that during the assessment, the teacher used a variety of higher-level questions to encourage deeper thinking and appropriate follow-up questions to probe for understanding.	1 The transcript shows that during the assessment, the teacher used very few probing and follow-up questions when a specific follow-up question would have been appropriate.	0	x .10 =
Does the evaluation accurately represent the child's current level of understanding on this concept using supporting evidence and work samples from the assessment?	5 The evaluation provides an accurate and detailed description of the child's current level of understanding on the concept. Many different and specific examples from the assessment are given, including the child's quotations, student work, and information from other sources on math development, to provide supporting evidence for the evaluation of the child.	4 3 2 The evaluation provides an accurate description of the child's current level of understanding on the mathematics concept. Different examples from the assessment are given, including the child's quotations and student work, to provide supporting evidence for the evaluation.	1 The evaluation provides a minimal description of the child's understanding on the mathematics concept. A few examples from the assessment are given, but there is not enough information to provide supporting evidence for the evaluation.	0	x .15 =
Does the instructional plan prescribe developmentally appropriate next steps for instruction and take into account the child's current level of understanding on this concept?	5 The plan is a creative, detailed description of developmentally appropriate next steps for instruction taking into account the child's current level of understanding. The plan identifies many specific examples of activities and tasks that would further enhance this child's knowledge of this concept. Information from other sources on math development and child development was used. Cite references.	4 3 2 The instructional plan describes developmentally appropriate next steps for instruction. The plan identifies several specific examples of tasks that would be appropriate to further enhance this child's knowledge on this concept. The plan describes these tasks in relation to the child's current level of understanding.	1 The plan describes some next steps for instruction that may not be developmentally appropriate. The plan gives general (rather than specific) examples of activities and tasks for the child. The tasks may not be appropriate either for the child or the development of the math.	0	x .10 =
Is there an appropriate reflection and evaluation of the assessment process?	5 In addition to the required information, the Report includes a detailed analysis, self-reflection, and self-evaluation of the assessment process.	4 3 2 The Report includes a reflection and evaluation on the assessment process including the required elements.	1 The Report does not include one or more of the required elements for the reflection.	0	x .10 =
TOTAL SCORE					

A	**5.0 – 4.5**
A-	**4.49 – 3.5**
B+	**3.49 – 2.5**
B	**2.49 – 2.0**
C	**1.99 – 1.0**
Unsatisfactory	**0.99 or below**

Course Schedule summer CLASS SCHEDULE 552-Summer Intensive PDS

Session #	Date	Topic/Learning Experiences	Readings & Assignments DUE
1-July 8th Thursday 7/8		How Do Children Learn Mathematics? NCTM's Principles & Standards PROCESS STANDARDS In class Discussion Van de Walle: Chapters 1 & 2 What is Problem Solving? Math Tools & Technology	Van de Walle: Chapter 1 & 2(in class) Chapter 8
2 -July 12th Monday 7/12		Mathematics Content/Pedagogy Responses* Planning for Mathematics Instruction Number Sense, Counting, Patterns & Place Value In class: Ch 7 Math Tools & Technology;	Assigned readings for this Class Session: Van de Walle: Chapters 3, 9, 10, 14
3- July13th Tuesday 7/13		Basic Facts & Whole Number Operations Assessment – Conducting a Diagnostic Interview COMMUNICATION: Promoting Math talk In-Class Discussion of Lesson Plan #1 In class Van de Walle: Chapters 6 Equity and access	Assigned readings for this Class Session: Van de Walle: Chapters 4, 11, 12,13
4 –July 14th Wed, 7/14		Mathematics Content/Pedagogy Responses* Fraction Concepts and Computation MULTIPLE REPRESENTATIONS	Assigned readings for this Class Session: Van de Walle: Chapters 5, 15, 16
5- July 15th Thursday 7/15		Decimals, Ratios, & Percent Data Analysis, Statistics, & Probability	Assigned readings for this Class Session: ***Lesson Plan #1 DUE** **Van de Walle: Chapter** 6, 17,21

6 -July 16th Friday 7/16	Mathematics Content/Pedagogy Responses* Geometry & Measurement In-Class Discussion of Lesson Plan #2	Assigned readings for this Class Session: **Van de Walle: Chapter** 22
7- July 19th, Monday 7/19	Mathematics Content/Pedagogy Responses* First day of summer camp Math across cultures Math & Craft (build your own abacus (NS), napier bones(OP), pyramid kites (GEO), 3 d shapes(GEO) Preassessment Stations: Annandale: A,B Westlawn: C, D "Math across Cultures" What is Problem Solving?Math Tools & Technology	Van de Walle: Chapters 3, 4, 8, 11
8- July 20th , Tuesday 7/20	"Math across Cultures" Number Sense, Counting, Patterns & Place Value Basic Facts & Whole Number Operations Math across cultures Math & Craft (build your own abacus (NS), napier bones(OP), pyramid kites (GEO), 3 d shapes(GEO) Guest speaker Dr. Padhu Seshaiyer Stations: Annandale: C, D Westlawn: A,B	**Lesson Plan #2 DUE** Van de Walle: Chapters 5, 9 , 10 & 12
9- July 21 Wed 7/21	Mathematics Content/Pedagogy Responses* Math games Fitness and math Math and fitness (measurement estimation and ratio) Heart rate monitor, temp probes, Motion probes, pedometer Stations: Annandale: C, D Westlawn: A,B	Van de Walle: Chapters 13, 15 & 16
10-July 22 Thursday 7/22	Fitness and math Fractions computation, Decimals, Ratios, & Percent Math and fitness (measurement estimation and ratio) Heart rate monitor, temp probes, Motion probes, pedometer (guest speaker-Johnny Lee) Stations: Annandale: A,B	**Van de Walle: Chapter 18, 19, 20** ***Individual Student Assessment PLAN**

	Westlawn: C, D	
11-July 26 Mon 7/26	Data Analysis, Statistics, & Probability Math games (statistics and probability) Chances are… Cards and dice games… Horse races… Individual assessment	**Van de walle** **Algebra Chapter**
12-July 27 Tuesday 7/27	Mathematics Content/Pedagogy Responses* Decimals, Ratios, & Percent Math games (statistics and probability) Design your own game Individual assessment	
12 July 28 Wednesday 7/28	Data Analysis, Statistics, & Probability Get ready for Carnival day Business planning (Finances)	
13 July 29 Thursday 7/29	Mathematics Content/Pedagogy Responses* Carnival of math Carnival math Stations: Math & Craft (build your own abacus (NS), napier bones(OP), pyramid kites (GEO), 3 d shapes(GEO) Math and fitness (measurement estimation and ratio) Math games (statistics and probability)	
Week of August 2-5th	Final Reflections on-line and	***Individual Student Assessment Final REPORT DUE Monday** Van de Walle: Chapter 14

Summer camp agenda
9:00-9:30 Morning warm-up
9:30-10:30 investigations (led by lead teacher and co teacher)
10:30-10:45 snack
10:45-11:45 stations (two 30 min stations manned by PST-preservice teachers)
11:45-12:00 Closure

Monday	Tues	Wed	Thurs	Friday
Math across cultures Math & Craft (build your own abacus (NS), napier bones(OP), pyramid kites (GEO), 3 d shapes(GEO) Preassessment Stations: Annandale: A,B Westlawn: C, D	Math across cultures Math & Craft (build your own abacus (NS), napier bones(OP), pyramid kites (GEO), 3 d shapes(GEO) Guest speaker Dr. Padhu Seshaiyer Stations: Annandale: C, D Westlawn: A,B	Fitness and math Math and fitness (measurement estimation and ratio) Heart rate monitor, temp probes, Motion probes, pedometer Stations: Annandale: C, D Westlawn: A,B	Fitness and math Math and fitness (measurement estimation and ratio) Heart rate monitor, temp probes, Motion probes, pedometer (guest speaker- Johnny Lee) Stations: Annandale: A,B Westlawn: C, D	Math games Metric Olympics AIMS (measurement statistics and probability)
Monday	Tues	Wed	Thurs	
Math games (statistics and probability) Chances are… Cards and dice games… Horse races… Individual assessment	Math games (statistics and probability) Design your own game Individual assessment	Get ready for Carnival day Business planning (Finances)	Carnival math Stations: Math & Craft (build your own abacus (NS), napier bones(OP), pyramid kites (GEO), 3 d shapes(GEO) Math and fitness (measurement estimation and ratio) Math games (statistics and probability)	Wrap up Post assessment

Student information sheet:

Name:
Email address:
Phone numbers: Cell/home
SCHOOL NAME:
GRADE:
Previous Employment:
Interesting fact about you:
Topics you'd like to explore/improve in teaching mathematics: