Course Description:
The course focuses on the alliance of factual knowledge, procedural proficiency, and conceptual understanding. The parallels of learner development and the progressive nature of mathematics content standards are explored. Teacher candidates will study the elements necessary to help P-8 students achieve high-quality mathematics instruction.

More specifically, in accordance with SC State and National Standards, teacher candidates will explore numbers and operations, geometry, measurement, data analysis and probability, and algebra. Problem solving, reasoning, multiple representations, connections, and communication are stressed throughout the course coverage of these content areas, facilitating the development of deep conceptual understanding, within each of the five aforementioned mathematical content areas.

At the successful completion of the course, teacher candidates will be better equipped to teach their future elementary- and middle-school students in a variety of ways such that their future students understand mathematics procedures and why mathematics concepts make sense. In addition, they will have a better understanding of how mathematical understanding develops for children as they progress from preschool through middle school.

Required Text:
- Hardcover (used hardcover: $75.00) and paperback available - purchase 4th Edition

- Used copies available online for about $3.00

- 120-day free trial available online at [www.nctm.org](http://www.nctm.org)

Course Requirements:
Demonstration of SOE Dispositions
Examples of how dispositions are evident are provided in italics.
- Belief that all students can learn, *participation and attitudes expressed about students and learning*
- Value and respect for individual differences, *interactions in class discussions and participation in group work*
- Value of positive human interactions, *participation in class and in group work*
- Exhibition and encouragement of intellectual curiosity, enthusiasm about learning, and willingness to learn new ideas, *participation in class and group discussions and performance on assessments*
- Dedication to inquiry, reflection, and self-assessment, *participation in class and group discussions; performance on assessments (especially the reading and course reflections assignments)*
- Value of collaborative and cooperative work, thoughtful, constructive critiques of others’ work, participation in class activities
- Sensitivity toward community and cultural contexts, participation in class and group discussions, tolerating, discussing, and respectfully listening to differing points of view
- Engagement in responsible and ethical practice, performance on assessments, class attendance, and participation in group activities
- Development of professional mastery over time, performance over time in writing, thinking, and expression of knowledge

Utilization of Computer Applications (Available in the CofC managed computer labs located in JC Long, Library, and other campus sites. If unfamiliar with these applications, set up a time for tutoring with me.)
- Internet
- Word processing
- Email
- WebCT

Completion of all assigned readings and assignments ON TIME.
See Course Assignments below for detailed descriptions.

Responsibility for ALL course content
Including lecture, text, outside reading, handouts, research, etc.

Responsibility for keeping up with grades and attendance
If you miss a class, ask a classmate for the missed assignments and notes.

Course Assignments:
Due dates for assignments, as well as scheduled exams, are listed in the syllabus. Any changes will be announced in class. All assignments must be turned in at the beginning of class on the date due. If, for medical or serious personal reasons, an assignment is late, the instructor should be informed of the reasons. Otherwise, each late course assignment – excluding classwork and homework assignments - will receive a five-point deduction per day that it is late. Classwork and homework assignments will not be accepted late. DO NOT give assignments to School of Education personnel. Assignments will NOT be accepted via email (unless specified explicitly).

Reading Reflections
To maximize the development of mathematical thinking, it is important that the TCs engage in their readings. Some of the readings will be addressed in class, but due to the vast body of pertinent literature in this field, some of the topics covered in the out-of-class readings will not. Therefore, TCs will be responsible for reflecting on readings throughout the semester. These reflections should include descriptions of “AHA!” moments, topics for which TCs are confused, topics that are of particular interest or concern to TCs, and constructive feedback for me about the usefulness of readings. This is an opportunity for me (1) to learn from the TCs and (2) to address any misconceptions or problems that they may have regarding the content of this course. I will collect the reflections four times throughout the course of the semester (due dates indicated on the schedule). Each collection should contain reflections and insights from the readings (which were assigned for that particular interval of time). Reflections from the readings should include quotations from sections throughout the beginning, middle, and end of the reading. Each entry should be between one and three typed and doubled-spaced pages. TCs may handwrite those items difficult to type, such as pictures, long numeric expressions, diagrams, etc.

Classwork and Homework Assignments
In addition to reading reflections, to maximize the development of mathematical thinking, it is important that the TCs engage in the actual mathematics being described both in their readings and in class. As such, throughout the semester, there will be content-based mathematics problems given from the class text, online resources, and materials provided during class. I will collect classwork/homework three times throughout the semester (due dates indicated on the schedule). Each collection should include all of the classwork and homework assignments assigned.
up to the due date. (I will be explicit about the problems to be collected.) Depending on the number of problems per
collection, I may spot check. Additionally, in order to earn credit for classwork activities, TCs must be present on
the day of the classwork activities being graded.

Article Critique
TCs will be asked to write a critique of an article from Teaching Children Mathematics. The argument of the
critique should focus on important contemporary issues in mathematics education relevant to schools in South
Carolina. Teaching Children Mathematics (TCM) is an official journal of the National Council of Teachers of
Mathematics (NCTM) and a forum for the exchange of ideas in curriculum, instruction, learning, and teacher
education. The primary audience of TCM is elementary-school teachers, and the journal contains many articles with
ideas that are directly applicable to the classroom. TCs with an interest in upper-elementary- and middle-grades
education also should look at Mathematics Teaching in the Middle School (MTMS) and are welcome to complete a
critique from an article in this journal. TCs may join NCTM online at
http://www.nctm.org/membership/content.aspx?id=7618. Both journals are available for review online for NCTM
members. The journals are also available in the library.

The objective in having TCs look at the journals is to help them gain familiarity with them as resources for teaching
elementary- and middle-school mathematics. They are to critique an article from either TCM or MTMS. The
critique should be from a "main" article -- one that is at least three pages and focuses on an issue. (Editorials,
reviews, and other short essays are informative, but I want TCs to look at more extensive articles.) TCs may select
any main article from the last three years. The May issue each year contains a subject index, so I encourage TCs to
look at this in order to select an article on a topic that is of particular interest. The critique should be between two
and three pages, word processed, and double spaced; it should focus on a (or the) major issue raised in the
article. TCs should clearly state the article under review, including the volume and issue number of the journal.
Finally, TCs should attach a copy of the article. (The due date is indicated on the schedule.)

Tests
TCs will be expected to complete three in-class tests. Largely based on content for the Praxis and the NCTM and
SC Standards, material on these summative assessments comes from (1) in-class lectures, discussions, and activities
and (2) out-of-class readings and assignments. (Test dates are indicated on the schedule.)

Standards Project
TCs will sign up to examine one of the five NCTM Content Standards throughout the three first grade bands (PK –
2, 3 – 5, and 6 – 8). (I would like an even distribution of TCs covering each Content Standard.) To fully examine the
Standard and how it progresses throughout the grade bands (i.e., the development of mathematical thinking), I
expect TCs to:
✓ Clearly explain the Standard and objectives for all three grade bands.
✓ Describe clearly how the objectives translate into classroom practice.
✓ Interview (and observe if you would like) a teacher from each of the grade bands in order to learn about
classroom activities that they think work best in addressing these objectives and Standard.
✓ Of the activities that they learn from these interviews, choose one per grade band. Provide a detailed description
of the three activities, giving step-by-step procedures for how to implement them each. Make certain to explain
why these activities appropriately meet the given objectives and Standard. Each of the activities must be aligned
with SC Standards and indicators and Common Core Standards as well as with the NCTM Standard and
objectives.
✓ Because “the mathematical Content and Process Standards…are inextricably linked,” for each of the activities,
describe how the Process Standards are integrated into the three activities (NCTM, 2000, p. 7).

TCs are expected to submit both a hard and electronic copy of their projects. At the conclusion of the semester, I
will compile a class set of the activities for each TC. The intent of this project is to familiarize TCs with the
National Standards, SC Standards, and the Common Core Standards; to help TCs see how children develop their
understanding of mathematical content from preschool through middle school; and to create a practical collection of
detailed activities that span the Content Standards and grade bands. Projects are to be completed and submitted
during the scheduled final exam time (Section 001: December 13th 8:00 am – 11:00 am; Section 003: December 8th 12 noon – 3:00 pm).

At the completion of our class coverage of a given content standard (number & operations, measurement, geometry, data analysis & probability, and algebraic thinking), the group which was assigned to that content area will teach a lesson on the development of student thinking from PK-8 in that given area. During the lesson, the group will demonstrate a sample activity or lesson from each of the three grade bands (early childhood, elementary, and middle), exemplifying to their classmates the development of mathematical thinking within the given content area. While not everyone’s lessons will be chosen from the group, each of the group members should contribute equally in the facilitation of the lessons. This will require some out-of-class preparation. Upon completion of the class demonstrations, each group member will assess the contributions of the other group members. Both the demonstration and peer assessment will be figured into the each TC’s Standards Project grade.

Note that while not indicated on the schedule, TCs should (1) work on this project throughout the semester and (2) read chapters three through six in the Principles and standards for school mathematics.

Participation and Attendance
During class, there will be a number of activities. TCs will be expected to participate in these activities (reflected in the classwork assignments) and in general class discussions.

EDEE Attendance Policy
Excessive absences (i.e., more than 15% - approximately 5 hours/4 classes - may result in receiving a “WA/F.”) Students will be tardy if they arrive 10 minutes after class has started. Three tardies result in one absence. Students will be absent if they arrive after 20 minutes or if they leave class early. Regarding being tardy or having to leave class early, exceptions will be made on an individual basis, but students must speak with me about extenuating circumstances for such exceptions. Regarding absences, if a student exceeds allowable absences due to extenuating circumstances beyond the student’s control, a panel of professors from that semester will review the circumstances and make a final decision.

SNAP students, if they wish special accommodations, must see the professor within the first two weeks of the course or as soon as they find out about potential accommodations if determined mid semester. Athletes who will miss class due to athletic events must see the professor within the first two weeks of the course and submit athletic schedule for the semester, identifying classes that will be missed. No other absences will be allowed for athletes who miss the maximum allowable absences due to athletic events.

Written and Oral Communication
TCs are expected to use correct grammar at all times. Points will be deducted on written assignments for grammatical errors. All references must follow the American Psychological Association (APA) Guidelines for Term Papers. For assistance with APA, a sample paper may be found on WebCT. The Writing Lab is located on the first floor of Addlestone Library (Monday through Thursday 9:00 am to 9:00 pm and Friday 9:00 am to noon). Further, it is imperative that TCs use correct grammar in all oral communication, especially during field experiences. Classroom teachers, student peers, and I will collaborate to eliminate all oral grammatical errors, using an approach of constructive criticism.

Evaluation
It will be possible to earn 420 points during the semester. They will be distributed as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Reflections (4)</td>
<td>15 points each, 60 points total (~14.3%)</td>
</tr>
<tr>
<td>Classwork and Homework Assignments (3)</td>
<td>20 points each, 60 points total (~14.3%)</td>
</tr>
<tr>
<td>Article Critique</td>
<td>60 points (~14.3%)</td>
</tr>
<tr>
<td>Tests (3)</td>
<td>35 points each, 105 points total (25%)</td>
</tr>
<tr>
<td>Standards Project</td>
<td>85 points (~20%)</td>
</tr>
<tr>
<td>Participation and Attendance</td>
<td>50 points (~12%)</td>
</tr>
</tbody>
</table>
Evaluation Scale

<table>
<thead>
<tr>
<th>Letter Grades</th>
<th>Percentage Range</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100%</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>91-92%</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>89-90%</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>86-88%</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>84-85%</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>82-83%</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>79-81%</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>77-78%</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>75-76%</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>72-74%</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>70-71%</td>
<td>0.7</td>
</tr>
<tr>
<td>F</td>
<td>≤ 69%</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Respectful Conduct

TCs are expected to be respectful and considerate of one another. Cell phones should be turned off while in class. Laptops should only be used in class if they are facilitating the development of mathematical thinking; if they appear to be a distraction, I will ask that they be put away.

CofC Honor System

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor determines the student’s actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php

ADA Accommodations

In compliance with the Americans Disabilities Act (ADA), all qualified students are entitled to “reasonable accommodations.” Any students requiring accommodations should contact the Center for Disability Services (953-1431) and provide me with documentation of needed accommodations within the first two weeks of the course or as soon as they find out about potential accommodations if determined mid semester.
Course Objectives
All teacher preparation programs in the College of Charleston’s School of Education (SOE) are guided by a commitment to the conceptual framework of “Making the Teaching and Learning Connection.” Three elements of teacher competency are fundamental to this framework; teachers must (1) understand and value the learner, (2) know what and how to teach and assess within a conducive learning environment, and (3) understand themselves as professionals. In addition, these competencies are foundational to the learning and assessments within this course, facilitating the development of knowledge, skills, and dispositions necessary for becoming an effective teacher.

Below are the specific end-of-course outcomes related to these teacher competencies. They are derived from the standards set forth by the National Council of Measurement in Education (NCME) and relate to those of the (1) School of Education (SOE), (2) National Council for Accreditation of Teacher Education (NCATE), (3) National Association for the Education of Young Children (NAEYC), and (4) National Middle School Association (NMSA). They, therefore, indicate the expectations for teacher candidates within the School of Education, early childhood teachers, elementary-grades teachers, and middle-grades teachers.

1. Teacher candidates (TCs) will develop the understanding of how students learn to construct mathematical ideas from the concrete early childhood experiences through the development of abstract thinking abilities in young adolescence.
   SOE I; NCATE 1; NAEYC 4b; NMSA 1.K1, 1.P2, 1.P4, 5.K4

2. TCs will articulate a vision of school mathematics that supports access of all students to a curriculum that emphasizes important mathematical concepts; effective and engaging research-based instructional practices; and high expectations with appropriate accompanying accommodations.
   SOE II, III; NCATE 2d, 3d; NAEYC 4b; NMSA 1.D3, 5.D7

3. TCs will convey an appreciation for the discipline of mathematics including its history and the contributions of diverse cultures to the field.
   SOE II, VII; NCATE 2d

4. TCs will articulate the knowledge that mathematics curriculum must be coherent and focused on important useful concepts that are connected within the discipline and across disciplines.
   SOE II; NCATE 2d, 2i, 3a; NAEYC 4b; NMSA 4.K2

5. TCs will recognize the importance of the role of student ideas, interests, and needs in the design, implementation, and evaluation of mathematically-based learning experiences.
   SOE I; NCATE 2d, 3a, 3d; NAEYC 4b; NMSA 3.K5, 3.D4, 4.P3

6. TCs will demonstrate an understanding of the need for a variety of instructional strategies to effectively address developmental, ability and learning style needs of PK-8 students exhibiting diversity in its many forms.
   SOE III; NCATE 4; NAEYC 1, 4b; NMSA 1.P5, 1.P10, 4.K3, 5.K2

7. TCs will demonstrate knowledge of, and dispositions that value, ongoing, systematic, formal, and informal assessment as an integral part of instruction that guides and enhances learning.
   SOE VI; NCATE 4; NAEYC 3, 4b; NMSA 1.P6, 5.K8, 5.D5, 5.P4, 6(all)

8. TCs will communicate about and through mathematics verbally and in writing using both everyday language and mathematical representations.
   SOE II; NCATE 2d, 3e; NAEYC 4b; NMSA 4.K4, 4.D4, 4.P5

9. TCs will demonstrate knowledge of the organization of the content standard areas of number and operations, algebra, geometry, measurement, data analysis and probability within the PK-8 mathematics curriculum as prescribed by the NCTM and the SC Standards.
   SOE II; NCATE 2d; NAEYC 4b; NMSA 4, 6.K5
10. TCs will demonstrate the value and integrative nature of the process standards of problem solving, reasoning, communication, connections, and representations within the PK-8 mathematics curriculum as prescribed by the NCTM and the SC Standards.
SOE II; NCATE 2d, 3c; NAEYC 4b, 4c; NMSA 4, 5.K3, 5.P2, 6.K5

11. TCs will demonstrate competency in, and an understanding of the value of, a breadth and depth of mathematical knowledge and skills that extend beyond the level for which the TC is preparing.
SOE II; NCATE 2d; NMSA 4.K1, 4.P2
### EDEE 323 Tentative Daily Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings (Math at Hand, NCTM, &amp; O’Daffer) &amp; Assignments to be completed for the given class</th>
</tr>
</thead>
</table>
| 8/25     | Beliefs about mathematics  
“Basics” in mathematics that all children must know  
Understanding how students learn mathematics  
Course overview  
Go over how to retrieve each set of standards | Review Common Core, SC, and National Standards online  
Bring an overview of each to class (part of participation grade) |
| 8/30     | Common Core, SC, and NCTM Standards                                   | O’Daffer: Ch. 1                                                                                 |
| 9/1      | Problem solving  
Reasoning  
Communicating                                                                 |                                                                                                 |
| 9/6      | Sets and whole numbers                                                | O’Daffer: 2.1                                                                                   |
| 9/8      | Addition and subtraction of whole numbers                             | O’Daffer: 2.2 and 3.3                                                                            |
| 9/13     | Multiplication and division of whole numbers                          | O’Daffer: 2.3 and 3.4                                                                            |
| 9/15     | Numeration systems  
Number sense                                                                 | O’Daffer: 2.4  
**Reflection #1 Due: standards, problem solving, sets, and whole numbers** |
| 9/20     | Mental math  
Estimation and rounding  
Properties of operation                                                      | O’Daffer: 3.1 and 3.2                                                                            |
| 9/22     | Factors and divisibility  
Prime and composite numbers  
GCF and LCM                                                                  | O’Daffer: Ch. 4  
**CW/HW #1 Due (You can pick up graded assignment from my mailbox Friday after noon.)** |
| 9/27     | Test #1                                                               | Review for Test #1: Standards and O’Daffer Chs 1 – 4                                             |
| 9/29     | Integers  
Addition and subtraction with integers                               | O’Daffer: 5.1                                                                                   |
| 10/4     | Multiplication & division with integers                                | O’Daffer: 5.2                                                                                   |
| 10/6     | Rational number system  
Begin discussion of fractions                                                 | O’Daffer: 6.1  
**Reflection #2 Due: numeration and integers**                                                   |
| 10/11    | Fall Break                                                             |                                                                                                 |
| 10/13    | Addition and subtraction with fractions                                | O’Daffer: 6.2  
**Article Critique Due**                                                                 |
| 10/18    | Multiplication and division with fractions                             | O’Daffer: 6.3                                                                                   |
| 10/20    | Multiplication and division with fractions  
Go over jigsaw assignment                                                   | O’Daffer: 6.4 and 6.5                                                                            |
| 10/25    | Jigsaw Day 1: Decimals, proportional reasoning, ratio, and percent     | O’Daffer: 7.1 – 7.3  
**CW/HW #2 Due**                                                                                 |
| 10/27    | Jigsaw Day 2: Decimals, proportional reasoning, ratio, and percent     | I will return CW/HW #2 today                                                                    |
| 11/1     | Test #2                                                               | Review for Test #2: O’Daffer Chs 5 - 7                                                          |
| 11/3     | The Development of “Number and Operations” Thinking                    | Begin reading O’Daffer Ch. 8  
**Number and Operations Presentations**                                                            |
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/8</td>
<td>Data analysis</td>
<td>O’Daffer: Ch. 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reflection #3 Due: rational numbers, jigsaw activity, overall class feeling</td>
</tr>
<tr>
<td>11/10</td>
<td>Probability</td>
<td>O’Daffer: 9.1, 9.2, and 9.4</td>
</tr>
<tr>
<td>11/15</td>
<td>The Development of “Data Analysis and Probability” Thinking</td>
<td>Data Analysis and Probability Presentations</td>
</tr>
<tr>
<td>11/17</td>
<td>Geometry</td>
<td>O’Daffer: 10.1, 11.1, and 11.2 (Skim other parts of chapter at your convenience)</td>
</tr>
<tr>
<td>11/22</td>
<td>The Development of Geometric Thinking</td>
<td>Geometry Presentations</td>
</tr>
<tr>
<td>11/24</td>
<td>Thanksgiving Break</td>
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<tr>
<td>11/29</td>
<td>Measurement</td>
<td>O’Daffer: Ch. 12</td>
</tr>
<tr>
<td>12/1</td>
<td>The Development of “Measurement” Thinking</td>
<td>Measurement Presentations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CW/HW #3 Due</td>
</tr>
<tr>
<td>12/6</td>
<td>Algebra</td>
<td>O’Daffer: 13.1, 13.2, and 13.3</td>
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<tr>
<td></td>
<td></td>
<td>Reflection #4 Due: data analysis, probability, geometry, and measurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I will return CW/HW #3 today</td>
</tr>
<tr>
<td>12/8</td>
<td>Test #3 (first hour and fifteen minutes)</td>
<td>Final Projects Due</td>
</tr>
<tr>
<td></td>
<td>Break for fifteen minutes</td>
<td>Review for Test #3: O’Daffer sections from chapters 8 – 13</td>
</tr>
<tr>
<td></td>
<td>The Development of Algebraic Thinking (last hour and fifteen minutes)</td>
<td>Algebra Presentations</td>
</tr>
<tr>
<td>12-3 pm</td>
<td>(Section 003) and 12/13</td>
<td></td>
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<tr>
<td>8-11 am</td>
<td>(Section 001)</td>
<td></td>
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<tr>
<td>12/13</td>
<td>Test #3 (first hour and fifteen minutes)</td>
<td></td>
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<tr>
<td></td>
<td>Break for fifteen minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Development of Algebraic Thinking (last hour and fifteen minutes)</td>
<td></td>
</tr>
</tbody>
</table>