

## SYLABUS

Diane Schiller, Ph.D.

[dschill@luc.edu](mailto:dschill@luc.edu)

Granada Center 445.2

773-508-8337

### COURSE DESCRIPTION

This is the first of a two course sequence which provides the fundamental knowledge base for teaching elementary school mathematics. Candidates study the underlying principles of mathematics appropriate for grades k-9. Candidates use Principles and Standards for School Mathematics from the National Council of Teachers of Mathematics (NCTM) and compare the national standards to the Illinois State learning goals <http://www.isbe.state.il.us/ils/lmath.html> and local mathematics standards such as the Chicago Academic Framework from the Chicago Public Schools (CPS) <http://intranet.cps.k12.il.us/Standards/CAS.html>. Candidates study all of the standards in each course but the focus of the first course is geometric thinking; the focus of the second course is algebraic thinking. Candidates in this class will teach a small group of elementary students each Wednesday during the regular class period. **This course fulfills LUC core values: civic engagement/leadership requirement.**

### COURSE RATIONALE and RELATIONSHIP to the TEACHER EDUCATION PROGRAM

To prepare teachers who can deliver high-quality mathematics education, the Loyola University Chicago teacher preparation program provides a strong knowledge base, positive attitude, and a wide range of instructional strategies. Teacher candidates begin their professional preparation from the first year of their matriculation in order to gain optimum value from the prescribed program and the clinical experiences. This course introduces the teacher candidates to the content and the methodology they can use as they begin to tutor students in the community. It also serves to introduce the teacher candidates to elementary aged students, their parents, and the local school.

Assessment of content knowledge in elementary education; this will be met by the course grade.

### CIVIC ENGAGEMENT COMPETENCIES

A significant element of Loyola's Jesuit Catholic heritage is a focus on developing within each student the capacity for leadership expressed in service to others. Candidates in teacher preparation are engaged in tutoring activities in the first year of their study. In CIEP104/Math 147, candidates develop a capacity to teach new material to students. They study models of excellent teachers as they prepare to give their unique imprint to mathematics instruction based on the standards developed by national and state mathematics education leaders. The curriculum provides candidates with the knowledge, skills, and abilities that will prepare them to become ethical and innovative teachers; to assume leadership roles in education; and to make a positive difference in the lives of underserved children through civic engagement.

**By way of example, Loyola graduates should be able to:**

**-Identify models of leadership and civic engagement, both current and historical.**

The basis of the lessons taught by candidates is the standard for mathematics instruction developed by the National Council of Teachers of Mathematics. Candidates are urged to become members of this organization. 1% extra credit is awarded to students who become members.

**-Demonstrate an understanding of the ethical responsibilities of leadership and its relationship to the Jesuit tradition.**

Through the COUNTDOWN web site, candidates have access to several different models of good teaching. From the beginning, candidates learn that their students expect them to come to work with them. The combination of consistency

and quality helps candidates develop professionally. Candidates know that they are preparing students to do well on high-stakes tests.

**-Apply analytical and reflective tools to assess situations and recognize leadership possibilities and opportunities for civic engagement.**

Candidates learn to use the state rubric for scoring students' work. Each week candidates reflect upon their students' achievement and their own performance.

**-Demonstrate effective team-building skills.**

Candidates work with the same student during the semester. They build a learning community with the students. As future elementary teachers, they come to understand that they are teachers of the whole child. In addition to teaching math, they have a responsibility to motivate their students.

**-Engage in the community through activities effecting positive change in society and the environment.**

Algebra is the gateway to college. Many children get a poor start in mathematics and never recover. This class gives Loyola undergraduates an opportunity to reverse this trend. Further, candidates learn that students in the Chicago Public Schools have the shortest school day in the nation. The quest for equality of educational opportunity begins just blocks away at the local public school.

CONCEPTUAL FRAMEWORK STANDARDS

*Professionalism in Service of Social Justice*

In this class, candidates will focus on the importance of mathematics to the future success of elementary school students. We will discuss the idea of "algebra as the gate keeper to higher education" and how excellent math instruction can impact students' future opportunities. Candidates will consider time as a factor in opportunity to learn. Candidates will have an opportunity to design, implement and assess instruction for a small group of elementary and middle school students.

CF1: Candidates demonstrate an understanding of a current body of literature and are able to critically evaluate new practices and research in their field.

CF2: Candidates demonstrate knowledge and skills in a variety of school and professional settings.

CF3: Candidates demonstrate an understanding of issues of social justice and inequity.

CF4: Candidates demonstrate skills that will enable them to work effectively with diverse clients.

CF5: Candidates demonstrate technological knowledge and skills which enhance education.

CF6: Candidates demonstrate professional decision-making skills and behaviors in advancing social justice and service.

CF7: Candidates demonstrate how moral and ethical decisions shape actions directed toward service to others.

CF8: Candidates apply ethical principles in professional decision-making.

DIVERSITY

Issues of diversity (socio-economic, ethnic, exceptionalities, and gender) are addressed through instructional methodology, assessment and technology. Teacher candidates study mathematics contributions made by a wide array of mathematicians.

### TECHNOLOGY

Teacher candidates learn how to integrate productivity tools on the computer into mathematics instruction. They learn how to use spreadsheets to solve problems and improve student understanding of algebra. Teacher candidates view videotapes of students responding to high quality instruction. Candidates are expected to use the internet to find and use excellent mathematical sites such as <http://www.forum.swarthmore.edu/> ; to research historical information about mathematics topics; <http://www.history.mcs.st> and <http://www.ac.uk/~history/> ;and to make connections with mathematics and other topics such as art at <http://library.thinkquest.org/16661/>, the tessellations of M. Escher.

### LEARNING ACTIVITIES

There are many different types of learning activities in this class. One set of activities insures that candidates know the content of mathematics and the standards from which math curriculum is developed. Math content is delivered through lecture, textbook problems, and classroom activities. In a typical lecture/problem sequence, candidates would review their understanding of factorials; explore the development of elementary instruction through manipulatives and visuals; solve problems; and explore the place of factorials in the elementary school math curriculum. Candidates would be able to identify that factorial activities are associated with the standard, "number and operations". In another lecture/problem solving sequence, candidates would learn about measures of central tendency and be able to associate the content with the standard, "data analysis and probability". Demonstrations are also used. For example, candidates learn that triangles have 180 degrees by creating various triangles, cutting off the angles and arranging the angles along a straight line. In another activity, candidates discover patterns in Pascal's triangle by coloring in multiples of different numbers. Candidates correct homework problems in small discussion groups as well as answer review questions from the previous lecture. Quick surveys are taken to help candidates see the variety of response in their peers. For example, after reading "The Greedy Triangle", candidates are asked to decide if the book should be renamed "The Curious Triangle".

Candidates small groups of elementary school students for one class period each week for the semester. Typical lessons include problem solving; computation games, computer activities, and homework review. Lessons plans are submitted each Wednesday. Candidates are informed by Wednesday evening by email if there is a problem with their lesson. Candidates with unacceptable lessons are required to make an appointment on Thursday to revise the lesson. **NO CANDIDATE IS ALLOWED TO TUTOR WITHOUT AN APPROVED LESSON PLAN.**

Candidates learn teaching skills. Some instruction for tutoring is delivered on line. Candidates learn how to teach a problem by watching a Quicktime movie of an experienced teacher on the COUNTDOWN web site. Candidates then create a dialogue and a model answer in preparation for each tutoring experience. Candidates prepare computer activities for their students in the same way. Candidates also have an opportunity to develop their own planning skills by choosing material from course material or supplementary sources.

Following the tutoring experience, candidates prepare a document that assesses the achievement of their students. The second part of the document asks candidates to consider changes they would make in their delivery if they were to repeat the activity.

Candidates learn how to evaluate student work by using the same rubric used by the state to score student work on the state test, ISAT.

### METHOD OF ASSESSMENT

**College students are expected to put in a minimum of 2x class time in additional outside study. Clinical time is calculated at 1/2 class time.**

A wide variety of evaluation strategies are used. Math problems, participation, integrative activities, tutoring, exams, and computer activities contribute to the final grade. **In addition candidates have an opportunity to earn up to 5% extra credit.** During the semester, at least 5 opportunities are provided. Each extra credit activity requires from 2-5 hours of work. Successful completion of each activity will earn 1% added to the final grade.

- **Assignments and Participation 22%**

Candidates are expected to participate in each class. All assignments (except for Jacobs) should be typed. All assignments are due for the next class period. Candidates hand in assignments in a 2-pocket folder. **No late assignments will be accepted.**

**Because this course is part of your professional program, the quality of your work is important. The rubric for grading assignments is:**

<b>Standard</b>	<b>Points</b>
I would show this to my principal.	1.0
I would show this to my colleagues.	0.9
I would show this to my students.	0.8
This is just for me.	0.7
I was not able to complete the whole assignment.	0.6-0.1
No assignment.	0

- **Tutoring 18%**

Candidates will prepare a packet for each lesson they tutor. It will include a script, sample answer, and reflection for each tutoring activity. The scripts and answers will be reviewed until they are acceptable. Candidates are expected to use the scripts as they teach.

- **Quizzes 30% (6 @ 5%)**
- **Final Exam 25%**

The final examination consists of 10-20 questions taken from a study guide and homework problems. It is cumulative. The following questions have appeared on the quizzes and/or final:

The call letters of radio and television stations in the United States begin with either K or W. West of the Mississippi River starts with K and those east of it with W. Some stations have three call letters. How many sets of call letters having three letters are possible? How many more are possible if 4 call letters are used?

Imagine you have tossed a coin 10 times. What is the probability that I could guess the order of heads and tails from your tosses?

- **NCTM Standards Notebook 5%**

Here is the rubric for your notebook:

**Cover:** 0-1% : This notebook represents your work in math for the semester. It should be colorful and have a meaningful visual.

**Tabs:** 0-1% : Use tabs to organize your work by the 5 NCTM content standards.

**Content:** 0-1% : All of your assignments should be in the notebook.

**Neatness:** 0-2% : You are studying to be a professional. You should be eager to show this notebook to a principal.

- **Extra Credit 0-5%**

Things happen, both good and bad. Extra credit will allow us to capitalize on unexpected events and will allow you an opportunity to earn back points for missed classes, poor performance on a quiz, and/or missed assignments. You can expect an extra credit opportunity to take between 3-5 hours per 1% added to your final grade.

### GRADE ASSIGNMENTS

A 95-100%

A- 93-94%

B+ 91-92%

B 87-90%

B- 85-86%

C+ 83-84%

C 80-82%

C- 78-79%

D 77-70%

F 0-69%

### ACADEMIC SUPPORT

#### **Small Group Tutoring**

Students will meet weekly with their small tutoring group, which will include other students from the same course, to enhance their exposure to and interaction with course material. These sessions will be guided by a trained peer tutor. These groups are most successful when students join early in the semester. Students can request small group tutoring on the CTAE website at [www.LUC.edu/tutoring](http://www.LUC.edu/tutoring).

#### **Math/Stats Boot Camp**

Math/Stats Boot Camp Tutoring will be available from January 18<sup>th</sup> – February 4<sup>th</sup>, Monday – Thursday, 11am – 6pm, and Friday 11am – 5pm. No appointment is needed for Boot Camp hours. Students may bring their Math or Statistics coursework to the Center and tutors will be on hand to assist. For more information about Boot Camp hours, visit the CTAE website at [www.LUC.edu/tutoring](http://www.LUC.edu/tutoring).

#### **Tutor-Led Study Hall**

Beginning February 7<sup>th</sup>, Tutor-Led Study Hall for intro-level classes in our high-demand subjects (accounting, biology, chemistry, economics, mathematics, select nursing classes, physics, and statistics) will be offered several hours a week to provide additional assistance to students with questions that arise between small group and class meetings. Students can find our Tutor-Led Study Hall hours on the CTAE website at [www.LUC.edu/tutoring](http://www.LUC.edu/tutoring).

## TEXTBOOKS

*Mathematics: a Human Endeavor: a Book for Those Who Think They Don't Like the Subject*, Harold Jacobs, 3rd Edition 0-1767-2426-x

*Mathematicians Are People, Too: Stories from the Lives of Great Mathematicians*, Luetta Reimer, Wilbert Reimer

*The Man Who Counted*, Malba Tahan ISBN 0-393-30934-7

*Riddle Math: Using Student-Written Riddles to Build Mathematical Power*, Carl Sherrill, morningriverpubs.com

*It's in the Cards! Math Card Games*, Diane Schiller

*The Number Devil: A Mathematical Adventure*, Hans Ensenberger ISBN 0-8050-6299-8

*More Stories to Solve: Fifteen Folktales from Around the World*, George Shannon, ISBN 13-978-0-380-73261-6

Other Material

<http://everydaymath.uchicago.edu/educators/index.shtml>

<http://countdown.luc.edu/index.html>

nctm.org

## ACADEMIC HONESTY

Academic honesty is an expression of interpersonal justice, responsibility and care, applicable to Loyola University faculty, students, and staff, which demands that the pursuit of knowledge in the university community be carried out with sincerity and integrity. The School of Education's Policy on Academic Integrity can be found at:

[http://www.luc.edu/education/academics\\_policies\\_integrity.shtml](http://www.luc.edu/education/academics_policies_integrity.shtml). For additional academic policies and procedures refer to:  
[http://www.luc.edu/education/academics\\_policies\\_main.shtml](http://www.luc.edu/education/academics_policies_main.shtml)

## ACCESSIBILITY

Students who have disabilities which they believe entitle them to accommodations under the Americans with Disabilities Act should register with the Services for Students with Disabilities (SSWD) office. To request accommodations, students must schedule an appointment with an SSWD coordinator. Students should contact SSWD at least four weeks before their first semester

or term at Loyola. Returning students should schedule an appointment within the first two weeks of the semester or term. The University policy on accommodations and participation in courses is available at: <http://www.luc.edu/sswd/>

### HARASSMENT (Bias Reporting)

It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of his or her race, color, national origin, gender, sexual orientation, disability, religion, age or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfill its educational and health care mission. For this reason, every incident of harassment, discrimination or abuse undermines the aspirations and attacks the ideals of our community. The university qualifies these incidents as incidents of bias.

In order to uphold our mission of being Chicago's Jesuit Catholic University-- a diverse community seeking God in all things and working to expand knowledge in the service of humanity through learning, justice and faith, any incident(s) of bias must be reported and appropriately addressed. Therefore, the Bias Response (BR) Team was created to assist members of the Loyola University Chicago community in bringing incidents of bias to the attention of the university. If you believe you are subject to such bias, you should notify the Bias Response Team at this link: <http://webapps.luc.edu/biasreporting/>

Date	Course Content	Assignments
1/19	<p><u>NCTM Standard: Number &amp; Operations</u>            I Introduction to Teaching Math            II <i>Number and Operations</i>: The Alphabet of Mathematics            III Math is a Cultural Phenomenon.            IV Multiplication is Everywhere            V Assignments:            VI Closure: As a result of this class, you should be able to answer the following questions on the final exam:  <b>1. Describe the secrets of pedagogy presented by Dr. Schiller.</b>  <b>2. How many different kinds of numbers are there and why do we need them?</b></p>	<p><b>1. Preview Textbooks</b> (35 minutes --@ 5 min/book)            Using your textbooks, take some time (an average of 5 minutes) to skim each one. Put the page # of two things you find interesting. Make a comment or prediction about each book. Finally, rank the books from 1 to 5 (1 most exciting to 5 least exciting) and give a reason for ranking your top 3.  <b>2. Jacobs:</b> (60 minutes)            a) Read pp184-186. What is the origin of the word "million"? What memory trick can you use to help you remember the names of the very large numbers listed on p. 186?            b) Read p 192-195. Define scientific notation. Set I p 194. Set I p 186:  <b>3. Mathematicians Are People, Too:</b> Read Gauss. 25 minutes)            Explain how he added the numbers from 1-100 so quickly and accurately. Use Gauss's method to add the numbers from 1-200. (</p>
1/21	<p><u>NCTM Standard: Number &amp; Operations</u>            I Introduction to Teaching Math            II <i>Number and Operations</i>: The Alphabet of Mathematics            III Math is a Cultural Phenomenon.            IV Multiplication is Everywhere            V Assignments:            VI Closure: As a result of this class, you should be able to answer the following questions on the final exam:  <b>3. Explain how you can represent the real numbers with manipulatives and the number line.</b>  <b>4. Explain why this formula will allow you to add a sequence of counting numbers from 1 to n.</b>  <math>n/2 (n + 1)</math></p>	<p><b>1. The Man Who Counted</b> (10 minutes)            a) Read the back cover and the dedication. Write one paragraph to explain how this text may broaden your understanding of mathematics.            b) Read Chapters 1 and 2. Copy or draw a map of the area described.  <b>2. The Number Devil</b> : Read " The First Night. ( 20 minutes)            Explain how the Number Devil uses chewing gum as a manipulative. What numbers would Robert need to multiply to make the digit "9"? Why must the pattern stop?  <b>3. Complete Lesson Plan 1.</b> (90 minutes)</p>

1/24	<p>NCTM Standard: Number &amp; Operations:  <u>Teaching the Sets of Real Numbers</u>  I Math Routine and Review of Assignments  II Place Value  III Productive Computation Practice  IV Multiplication is everywhere  V: Clinical Experience and Assignments  VI Closure: As a result of this class, you should be able to answer the following questions on the final exam  <b>5. What is the name of our numeration system and how can we describe it?</b>  <b>6. Write 2010, 2011, 2012, and 2013 in Mayan, Egyptian, Roman and Babylonian numerals.</b>  <b>7. Describe the 3 stages of teaching the sets of real numbers.</b></p>	<p><b>1. The Number Devil</b> Read “The Second Night. : (20 minutes)  What digit is missing from the forest of 1s?  Write the year of your birth in Roman numerals.  Explain how the Number Devil reinforces the lecture.  What does the number devil call the geometric sequence?  What geometric sequences are used in the text?  Produce the year you were born.<b>2. Binary Sequence (30 minutes)</b>  <b>2. Read “The Man Who Counted”</b> Chapter 16 <i>The Game Plan</i>: (20 minutes)  Read Jacobs p 75.-76.  What important part of the legend is omitted from Jacobs?  Explain why you can say that the binary sequence is both old and new. Set I p 77.  <b>3. Jacobs:</b> (60 minutes) Read p 60 – 61.  Use a Venn diagram to illustrate a number sequence and an arithmetic sequence.  What is <i>common difference</i>? Set I p 61. Read p 67-68.  Add geometric sequences to your Venn diagram. What is <i>common ratio</i>?  Compare arithmetic and geometric sequences. Set I p 69.  <a href="#">Number Sequence: Introduction</a>  <a href="#">Number Sequence: Visual</a>  <a href="#">Geometric Sequence: Whole Number</a>  <a href="#">Geometric Sequence: Fractions</a>  <b>4. Lesson Plan 1:</b> Revise based on feedback : (20 minutes)</p>
1/26	<p>I Clinical Experience at Swift School  II Closure  <b>8. Describe and give an example of an arithmetic sequence and a geometric sequence. Explain why the elementary school teacher needs to understand them. Give the general formula for each. Sketch a graph of each.</b>  <b>9. Determine if 19 is a happy number. What will you know about 91? 190? 109?</b></p>	<p><b>1. Reflection on Lesson</b> (30 minutes)  <b>2. Mathematicians Are People, Too.</b> (60 minutes)  Read Sophie Germain . Prepare for a debate on the following topic: Sophie should not have disobeyed her parents. Develop three points for the affirmative side and three points for the negative side  Read Archimedes. What is the connection between these two mathematicians? Show the mathematics problem that allows you to calculate the number of years between these two mathematicians.  <b>3. Productive Computation</b> <a href="#">Happy Numbers - Yes</a> (30 minutes)  Complete the COUNTDOWN Challenge as an answer key for your future students.  <a href="#">Happy Numbers - No</a> Why are happy numbers an example of productive computation practice?</p>
1/28	<p>NCTM Standard: Number &amp; Operations:  Integers: Teaching the Sets of Real Numbers  I Math Routine and Review of Assignments  II Integers  III Productive Computation Practice  IV Assignments  VI Closure:  <b>10. Describe the 3 stages of teaching the sets of real numbers.</b>  <b>11. What is the value of productive computation practice?</b>  <b>12. Give an example of how to use hypothesis testing to teach computation.</b></p>	<p><b>1. The Man Who Counted:</b> (40 minutes)  a) Read Chapter 20. Create a timeline to illustrate the lesson presented by Beremiz.  b) Read Chapter 15: Create a magic square for the numbers 2-10.  For the “diabolical” describe 3 additional sums of 34 that are not presented in the chapter.  What irrational number is described at the end of the chapter? Define it.  <b>2. Complete Lesson Plan 2.</b> (80 minutes)  3. Study for Quiz #1</p>
1/30	<p>NCTM Standard: Number &amp; Operations:  <u>Teaching the Sets of Real Numbers</u>  I Math Routine and Review of Assignments  II Rational and Irrational Numbers  III Productive Computation Practice  IV Assignments  V. Quiz #1  VI Closure:  <b>13. Write 422 as a sum of unique powers of two. Explain why this is an example of productive computation.</b>  <b>14. Is 27 a square number? a prime number? a cube number? a Fibonacci number? a happy number? Explain.</b>  <b>15. Express 420 has a sum of unique powers of two and as a combination of sums and difference of unique power of three.</b></p>	<p><b>1. Jacobs Chapter 4: The Sequence of Squares:</b> (60 minutes)  Read p 83-84. What are the historical references to this number sequence? How did the Greeks represent this sequence? How does the visual on page 84 illustrate that square numbers are the sum of consecutive odd numbers? Set I p 84. The Sequence of Cubes: Read p 92-94. Copy the visual on page 93 and color code it. Set I p 94.  <b>2. Number Devil: Read: The Fifth Night.</b> Answer the following questions: (40 minutes)  1. What manipulative does the Number Devil use to display the triangular numbers?  2. What manipulatives does he suggest you might use?  3. How does he defend 1 as a triangular number?  4. What hypothesis does the Number Devil pose?  5. Choose five two-digit numbers to test the hypothesis. Explain why this is an example of productive computation.  6. Give five examples to show that a square number is the sum of two consecutive triangular numbers.. Explain why this is an example of productive computation.  7. Explain the difference between Gauss’s method for adding consecutive counting numbers and the one described by the Number Devil.  8. What other figurate numbers does the Number Devil mention? Do you think there are more? about how many more?  <b>3. Lesson Plan 1:</b> Revise based on feedback : (20 minutes)</p>

2/2	<p>I Clinical Experience at Swift School  II Closure</p> <p><b>16. What is a perfect number? If you know what a perfect number is, predict the definition of deficient and abundant numbers. Give an example of each. Are all prime numbers also deficient numbers? Prove it. Are all composite numbers abundant numbers? Prove it.</b></p>	<p><b>1. Reflection on Lesson</b> (20 minutes)  <b>2. Prepare for Quiz #1</b> (30 minutes)  <b>3. The Man Who Counted:</b> Read Chapter 10. (40 minutes)</p> <ol style="list-style-type: none"> <li>1. Explain the 1,488 acts of supreme charity.</li> <li>2. How do you know that the author is aware of Jewish and Christian scripture?</li> <li>3. What is a perfect number?</li> <li>4. If you know what a perfect number is, predict the definition of deficient and abundant numbers. Give an example of each.</li> <li>5. Are all prime numbers also deficient numbers? Prove it.</li> <li>6. Are all composite numbers abundant numbers? Prove it.</li> <li>7. Study for quiz #2</li> </ol>
2/4	<p>NCTM Standard: Number &amp; Operations:  I Math Routine and Review of Assignments  II Number Theory and Productive Computation Practice  III Assignments  IV Quiz #2  V Closure</p> <p><b>17. Give 5 different examples of using number theory as productive computation practice.</b>  <b>18. What is the Sieve of Eratosthenes? What are the first 10 prime numbers?</b></p>	<p><b>1. Complete Lesson Plan 3.</b> (60 minutes)  <b>2. Prime Numbers, Number Devil:</b> Read: <i>The Third Night.</i> (30 minutes)</p> <p>Answer the following questions:</p> <ol style="list-style-type: none"> <li>1. How does the Number Devil react to Robert's suggestion to divide by zero??</li> <li>2. Write the multiplication and division facts for <math>10 \times 0</math>.</li> <li>3. How does the Number Devil name prime and composite numbers.?</li> <li>4. Why are prime numbers interesting to mathematicians??</li> <li>5. Describe and demonstrate three different productive computation activities from this chapter.</li> </ol> <p><b>3. COUNTDOWN</b> 30 minutes)  <a href="#">Sieve of Eratosthenes: Part 1</a> <a href="#">Sieve of Eratosthenes: Part 2</a>  Complete the COUNTDOWN Challenge as an answer key for your future students. Color code your document the same way the COUNTDOWN teacher does.  <a href="#">Prime Number Graphics</a> What developmental level is this activity?  <a href="#">Prime Factorization</a> <a href="#">Prime Factorization: 2 thru 15</a> Explain why this is productive computation practice.</p>
2/7	<p>NCTM Standard: Data Analysis &amp; Probability:  <u>Use probability to help students understand fractions</u>  I Math Routine and Review of Assignments  II Probability: Essential ideas  III Assignments  IV Closure</p> <p><b>19. Explain what the following essential ideas of probability mean:</b>  a) . Probability can be expressed as a fraction, decimal or %  b). We use probability everyday.  c). Probability exists between 0 and 1.  d). Events can be independent or dependent.  e). The formula for probability is:  Favorable Outcomes / Total Outcomes  f). To find the probability of successive events, multiply each event.  g). Complementary events are two events that add up to one. For example: The probability of my birthday being on a Monday (event 1) and not on a Monday (event 2)  h). Theoretical probability is based on a formula..  i). Experimental probability is based on an experiment.</p> <p><b>20. Explain why probability and fractions should be taught together.</b>  <b>21. What is the probability of having four boys in a row? Tossing 4 heads in a row?</b></p>	<p><b>1. Mathematicians Are People, Too</b> Read Pascal (20 minutes)  Prepare three discussion questions you might use with a 6<sup>th</sup> grade class after you read this story to them. A discussion question has no correct answer. It might begin such as: Do you think...If you were Pascal, how would you have...etc.</p> <p><b>2. COUNTDOWN</b> (85 minutes)  <a href="#">Pascal's Triangle: Part 1</a> Explain why this is a 3-D activity.  <a href="#">Pascal's Triangle: Part 2</a> Explain how Pascal's triangle is symmetrical.  <a href="#">Pascal's Triangle: Part 3</a> Explain how to find the pattern of powers of two and powers of 11 in the triangle. Which is finite and which is infinite?  <a href="#">Pascal's Triangle: Part 4</a> Complete the activity sheet and show three hockey stick and 3 petal patterns.  <a href="#">Pascal's Triangle: Multiples of 2</a> <a href="#">Pascal's Triangle: More Multiples</a></p> <p><b>3. Lesson Plan 3:</b> Revise based on feedback : (15 minutes)</p>
2/9	<p>I Clinical Experience at Swift School  II Closure</p> <p><b>22. Draw the first 6 lines of Pascal's triangle. Show three different sets of numbers.</b>  <b>23. What are the first 10 triangular numbers? How are they related to square numbers?</b>  <b>24. What are the first 10 Fibonacci numbers?</b></p>	<p><b>1. Reflection on Lesson</b> (10 minutes)  <b>2. Jacobs</b> (50 minutes)  Read p 402. Draw a tree diagram to show all 12 (<math>3 \times 2 \times 2</math>) of the possibilities of a chocolate bar: Type of chocolate: milk, dark, white. Size of bar: small or large. Additions: nuts or raisins. Set I  Read p 448-450. Copy the number segment and add a row for fractions. Set I.</p> <p><b>3. The Number Devil The Seventh Night</b> (40 minutes)</p> <ol style="list-style-type: none"> <li>1. Use the triangle to find the sum of the first 11, 13 and 4<sup>th</sup> triangular numbers.</li> <li>2. Express the sum of the first 7 rows in standard form and in prime factorization form.</li> <li>3. On page 139, show how the sum of the diagonal of green blocks is the Fibonacci number 21. Show how the sum of the red diagonal blocks is the next Fibonacci number.</li> <li>4. Compare the Fibonacci sequence illustrated in Jacobs on page 494. Which one is an easier visual for you?</li> </ol>

2/11	<p>NCTM Standard: Data Analysis &amp; Probability:  <u>Use probability to help students understand fractions</u>  I Math Routine and Review of Assignments  II Probability: Essential ideas  III Assignments  IV Closure  <b>25. Explain why probability and fractions should be taught together.</b>  <b>26. Describe the difference between a number theory and an algebraic approach to teaching fractions.. Why should you teach children both methods?</b>  <b>27. For what problem did Thales use a proportion? Name two other problems he solved without using a proportion.</b></p>	<p><b>1. Complete Lesson Plan 4.</b> (60 minutes)  <b>2. COUNTDOWN</b> (20 minutes)  <b>Tangrams Exploring Tangrams Using "Grandfather Tang's Story"</b>  <b>3. Proportions are key to solving many problems.</b> (40 minutes)  a) MAPT Read Thales. For what problem did Thales use a proportion? Name two other problems he solved without using a proportion.  b) The Man Who Counted Chapter 5. Make a chart to show the different proportions used by the jeweler, Old Salim and Barmiz.</p>
2/14	<p>NCTM Standard: Data Analysis &amp; Probability:  <u>Use probability to help students understand fractions</u>  I Math Routine and Review of Assignments  II Probability: Essential ideas  III Assignments  IV Closure  <b>28. a) Explain why the study of the fundamental counting principle, permutations and combinations are important to the study of probability.</b>  <b>a) Explain why a multiple choice test is an example of independent events.</b>  <b>b) Give other examples of independent events.</b>  <b>c) . Explain why a matching test is an example of dependent events.</b>  <b>d) Give other examples of dependent events..</b>  <b>e) Draw two different tree diagrams to illustrate the number of different three scoop ice-cream cones (chocolate, vanilla and strawberry) that are possible if the scoops are independent events.</b>  <b>f) Draw two different tree diagrams to illustrate the number of different three scoop ice-cream cones (chocolate, vanilla and strawberry) that are possible if the scoops are independent events.</b>  <b>g) Fully describe two different activities you can use to make permutations meaningful to third graders.</b></p>	<p><b>1. Jacobs:</b> Read p 413-415. (60 minutes)  Make a tree diagram to show the ways four children can finish first, second and third in a race. Show the mathematical notation. Calculate the number of permutations. Define permutation. Set II p 417.  Read p 467-468 For how many years have cards been used? Describe a different independent event and dependent event that fit the calculations in the text. Set I.  <b>2. The Man Who Counted.</b> (30 minutes)  Read Chapter 3. What is the sum of <math>\frac{1}{2}</math>, <math>\frac{1}{3}</math> and <math>\frac{1}{9}</math>? What did the brothers think was the sum? Read Chapter 4. Draw an illustration of each of the three divisions. Which one is not related to fractions. Explain.  <b>3. Lesson Plan 4:</b> Revise based on feedback : (10 minutes)</p>
2/16	<p>I Clinical Experience at Swift School  II Closure  <b>h) Explain why the handshake problem is a combination problem.</b>  <b>i) Explain how sports games and pairs of children are like handshake problems.</b>  <b>j) How many handshakes would there be between 42 people if everyone shakes hands with everyone else once?</b>  <b>k) What is the mathematical notation for finding the number of different orders in which you could give 5 classroom jobs to 20 students?</b></p>	<p><b>1. Reflection on Lesson</b> (15 minutes)  <b>2. COUNTDOWN</b> (60 minutes)  <b>A Factorial Demonstration</b> Explain why this is a 3-D developmental model lesson.  <b>A Factorial Game</b> Prepare material for this game. You will be using it when we teach the 7<sup>th</sup> grade next month.  <b>Factorial Computation</b> Explain why this is a productive computation lesson.  <b>A Factorial Story</b> Prepare a 5! Story.  <b>Permutations and Probability</b> What other four our five letter word can you use for this activity? What makes this a 3-D activity?  <b>Permutation Notation Demonstration</b> What makes this a 2-D and a 1-D activity?  <b>Permutation Word Problems</b> Be able to solve all of these problems.  <b>Seating Arrangements</b> Explain how this problem can help students become systematic thinkers.  3. Study for quiz #3</p>
2/18	<p>NCTM Standard: All: Systematic Thinking  I Math Routine and Review of Assignments  II Mathematical Ways of Thinking  III Assignments  IV. Quiz #3  V Closure  <b>l) What is the mathematical notation for finding the number of different teams of 5 children you could make in a classroom of 20 students</b></p>	<p><b>1. Jacobs: Set I p 436</b>  <b>2. Jacobs Set I p 422.</b>  <b>3. Jacobs</b> Read Chapter 1, Lesson 1 p 6-8. List the questions asked by the author and add one of your own. Use the following website to help you answer the questions in Sets I and II. <a href="http://illuminations.nctm.org/activitydetail.aspx?id=28">http://illuminations.nctm.org/activitydetail.aspx?id=28</a>  Read p 12-14. Explain why the simplest path of the billiard ball is on a table the shape of a square. Complete Set I. (60 minutes)  <b>4. The Number Devil</b> Read "The Eighth Night". This chapter is about permutations and combinations. On what page does the author move from permutations to combinations? Use the number triangle to find the combinations of 5 things taken 1 at a time; two at a time; three at a time; four at a time; and five at a time. Show the mathematical notation for the combinations of 5 things taken three at a time.</p>

2/21	<p>NCTM Standard: All: Systematic Thinking  I Math Routine and Review of Assignments  II Mathematical Ways of Thinking  III Assignments  IV Closure  <b>29. Explain the difference between inductive and deductive reasoning. Give examples from the text.</b></p>	<p><b>1. Complete Lesson Plan 5.</b> (60 minutes)  <b>2. <i>The Man Who Counted</i>:</b> Read #25 p 203. Explain how this story illustrates the limits of inductive reasoning. Read # 31, 32, and 33. Use illustrations to show the logic or deductive thinking used by our hero.  <b>3. Jacobs.</b> Read p 31-32. Contrast the inductive and deductive efforts to find if a Soma cube can be constructed n fewer than 6 cuts. Set I</p>
2/13	<p>I Clinical Experience at Swift School  II Closure  <b>30. What are the limitations of inductive reasoning? Why is deductive reasoning superior?</b></p>	<p><b>1. Reflection on Lesson (10 minutes)</b>  <b>2. Jacobs Read p 19-20.</b> (90 minute)  Explain the relation of the cartoon to the text. Define inductive reasoning. Set I and II. Read p 25-26. Explain the relation of the cartoon to the text. Define inductive reasoning. Set I and II.  <b>3. Map:</b> (20 minutes) Read Napier. Explain how you could find out if Napier was alive during the Salem witch trials in New England.</p>
2/25	<p>NCTM Standard: Data Analysis &amp; Probability  I Math Routine and Review of Assignments  II Middle School  III Data Analysis  IV Assignments  V. Closure  <b>31 What are the measures of central tendency and the measures of variability?</b>  <b>a) Describe a correlation activity you could do with your class.</b>  <b>b) What is the range of correlations?</b>  <b>c) What does a positive 1 correlation indicate? a negative 1 correlation?</b>  <b>d) Explain why correlation activities are productive.</b>  <b>e) Draw a sketch of a standard normal curve, including all important information.</b>  <b>f) The median score for the 7th grade constitution test was 70. The mean score was 60. The standard deviation was 4. Find the range.</b>  <b>g) Describe two data collection activities you could do with your students.</b></p>	<p><b>1. Jacobs</b> (60 minutes)  Read p 526-528. List and define three important vocabulary words for statistics. Who believed that "Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." What was his claim to fame? Set I  Read p 537-539. This was written in 1994. How old were you then? Explain why the case that Jacobs makes is even stronger today. Set I  <b>2. Read More Stories to Solve.</b> (60 minutes)  You are going to make a graph to see if your problem solving skills improve as a result of practice. Divide the book in half (7 stories). Read each story and give yourself 2 minutes to solve it before reading the answer. You can record your data as solved, not solved. Make a bar graph to show how many you solved. Now do the same thing for the second 7 stories.  Print a world map and indicate the country of origin of each folktale (p 56-57). Make sure your map includes the equator, the Prime Meridian and the International Date Line.  Make one bar graph to compare the number of stories from the Northern hemisphere and the Southern hemisphere;  make one bar graph to compare the number of stories from the Eastern hemisphere and the Western hemisphere; and  make one bar graph to compare the continents.</p>
2/28	<p>NCTM Standard: Data Analysis &amp; Probability  I Math Routine and Review of Assignments  II Data Analysis  III Assignments  IV. Closure  <b>32. A consumer complains that a graph is misleading. 33. Describe three things that might make the graph misleading</b></p>	<p><b>1. Jacobs</b> (90 minutes)  Read p 546-547. Review the following COUNTDOWN videos and describe how the lessons use the developmental model of instruction. Set II  <a href="#">Vocabulary Mode</a>  <a href="#">Mode</a>  <a href="#">Mode: Part 2</a>  <a href="#">Vocabulary Median</a>  <a href="#">Median</a>  <a href="#">Median: Part 2</a>  <a href="#">Vocabulary Mean</a>  <a href="#">Mean</a>  <a href="#">Mean: Part 2</a>  <a href="#">A Mean Card Game</a>  <a href="#">A Mean Word Problem</a>  <a href="#">Vocabulary Range</a>  <a href="#">Range</a>  <a href="#">Range: Part 2</a>    Read p 554-556. Explain the cartoon. Why do we need measures of variability? Copy the sketches you see on p 556. Be able to reproduce them from memory. Set II.  <b>2. <i>It's In the Cards!</i></b> Read the Introduction. Describe the positive outcomes from using this book. Answer the questions following the statistics card games.  <b>3. <i>Riddle Math</i>:</b> Study the <i>Curriculum Correlations</i> table on p viii. What is the common standard for all of the 11 types of riddles? Which are the two most productive riddles? Read p ix-xx. Give 4 reasons why this instructional material is excellent.</p>

3/2	<p>NCTM Standard: Geometry</p> <p>I Math Routine and Review of Assignments</p> <p>II Geometry</p> <p>III Models of Teaching</p> <p>IV Assignments</p> <p>V. Closure</p> <p><b>34. Make a table to show the value of the first four places in bases two to twelve.</b></p> <p>a) Give the general formula for each.</p> <p>b) Sketch a graph of each.</p> <p>c) In base ten, show the place value from one thousand to one one-thousandth as fractions, decimals and exponents.</p> <p>d) Distinguish between <math>2n</math> and <math>2n</math> .</p> <p>e) Give two real world examples that distinguish between <math>2n</math> and <math>2n</math> .</p> <p>f) Graph <math>2n</math> and <math>2n</math> .</p>	<p><b>1. Jacobs:</b> (50 minutes)</p> <p>Read p 564 What are the advantages and disadvantages of graphs? Set II</p> <p>Read p 574-575. List and define important vocabulary words related to sampling. Set II</p> <p><b>2. Reinforce today's lesson:</b></p> <p>A. COUNTDOWN (50 minutes)</p> <p><b>Lines and Angles:</b> <a href="#">Classifying Lines</a>: Create your own activity sheet for this video.</p> <p><b>Two-dimensional shapes:</b> <a href="#">Naming Triangles: Sides</a>: Defend the statement: The COUNTDOWN teacher uses concept development as the model of instruction. Complete the activity sheet as an answer key for your future students.</p> <p><b>Symmetry:</b> <a href="#">Symmetry Using the Alphabet</a> Explain why preschool and primary teachers can use this activity.</p> <p><b>Congruence and Similarity:</b> <a href="#">Charting Cotton Reel Quilt Patterns</a> Replicate the chart on the video for three different quilt patterns. Defend the statement: This activity connects math and art.</p> <p><b>3. The Number Devil:</b> Read "The Tenth Night. (20 minutes)</p> <p>a) Choose two of your own numbers. Follow the Number Devil's directions and see how close you get to the golden mean or ratio.</p> <p>b) Create three different line drawings or networks. Test the Number Devil's formula.</p> <p>c) Use a cube and a triangular pyramid (tetrahedron) to test the Number Devil's formula.</p>
3/4	<p>NCTM Standard: Geometry</p> <p>I Math Routine and Review of Assignments</p> <p>II Geometry</p> <p>III Models of Teaching</p> <p>IV Assignments</p> <p>V. Closure</p> <p><b>35. How should a teacher conceptualize instruction for geometry?</b></p> <p>a) Explain how you can connect points, lines planes and solids for elementary school students' study of geometry.</p> <p>b) Explain how to use a point to find the measure of degrees of congruent angles.</p> <p>c) Two lines intersect forming angles a, b, c and d. The measure of d is 23 degrees. Find the measure of angles a, b and c.</p> <p>d) Illustrate and give the correct mathematical notation for lines, line segments and rays AB.</p> <p>e) Illustrate and give the correct notation for perpendicular and parallel lines, line segments and rays AB and CD.</p> <p>f) Sketch four traffic signs and describe each in detail.</p> <p>g) Fully describe a regular polygon</p>	<p>I. COUNTDOWN (90 minutes)</p> <p><b>Polygons</b> Defend the statement: This COUNTDOWN teacher uses a concept development model of teaching. Complete the <i>geometric concept</i> activity sheet as an answer key for your future students.</p> <p><a href="#">Sum of Interior Angles: Triangle Part 1</a></p> <p><a href="#">Sum of Interior Angles: Triangle Part 2</a></p> <p>Prepare instructional material to show that the sum of the angles of triangles is 180 degrees. Make the material for at least three different types of triangle. Explain how this activity also reinforces the concept of congruence.</p> <p><a href="#">Sum of Interior Angles: Quadrilaterals</a></p> <p>Prepare instructional material to show that the sum of the angles of quadrilaterals is 360 degrees. Make the material for at least two different types of quadrilaterals..</p> <p><b>2. Connections: MAPT:</b> (30 minutes) Read Euler. What connections are there between Euler's story and "The Tenth Night" in the <i>Number Devil</i>?</p>
3/7	Spring Break	
3/9	Spring Break	
3/11	Spring Break	
3/14	<p>On Line Class: Topology</p> <p><b>36. What is topology?</b></p> <p>a) Name five things that are involved in the study of topology.</p> <p>b) How is Euler related to the study of topology?</p> <p>c) Design one network that has at least 5 vertices and 5 edges that can be traveled and one that cannot be traveled.</p> <p>d) Use a formula to show the difference between Euler's formula for a network and for a solid.</p> <p>e) What is a Moebius strip?</p>	<p><a href="#">Mazes</a> How can you always get out of a maze?</p> <p><a href="#">Intro to Topology</a> Name five things that are involved in the study of topology. Complete the COUNTDOWN Challenge</p> <p><a href="#">Simple Closed Curves: Part 1</a> What is the teaching method used in this video?</p> <p><a href="#">Simple Closed Curves: Part 2</a> Write an assessment question to see if the students have achieved the goal of this lesson.</p> <p><a href="#">Seven Bridges of Konigsberg</a> Defend the statement: This COUNTDOWN teacher uses "What do you see?" as her model of instruction.</p> <p><a href="#">Identifying Odd &amp; Even Vertices</a> Defend the statement: This activity could be done with pre and kindergarten students.</p> <p><a href="#">Traveling Networks</a> Design one network that can be traveled and one that cannot be traveled.</p> <p><a href="#">Euler's Discovery:</a> What was Euler's discovery?</p> <p>Defend the statement: Topology is a fairly new branch of mathematics compared to geometry.</p> <p>Why would we not expect to find topology topics in <i>The Man Who Counted</i>?</p> <p>Read p 617 in Jacobs to see how the Konigsberg Bridge problem was solved.</p> <p>It is spring. The weather is nice. You would like to do some outdoor math. Bring out some colored chalk and teach topology. Write a goal and describe an activity.</p>

3/16	<p><u>NCTM Standard: Geometry</u>  I Math Routine and Review of Assignments  II Geometry  III Models of Teaching  IV Assignments  V. Quiz #4  <b>15. Fully describe the Platonic solids. polygons creating the solid</b>  <b># of faces</b>  <b># of edges</b>  <b># of vertices</b>  <b>total degree at vertex</b>  <b>37. a) Explain why are there only five Platonic solids.</b>  <b>b) What is the mathematical meaning of truncated?</b>  <b>c) What is an Archimedean solid?</b>  <b>d) What is the proper name of a soccer ball?</b>  <b>e) What is the sum of the angles at each vertex of a truncated icosahedron?</b>  <b>f) In degrees, what is the difference between a sphere and a truncated icosahedron?</b>  <b>g) Describe a regular prism.</b>  <b>h) Describe a regular pyramid.</b>  <b>i) As you add sides to the base of a regular pyramid, what happens to the measure of the angle at each vertex? What shape does the pyramid begin to resemble?</b>  <b>j) As you add sides to the bases of a regular prism, what happens to the measure of the angle at each vertex? What shape does the prism begin to resemble?</b>  <b>k) Show that Euler's formula works for Platonic solids, regular prisms and pyramids.</b></p>	<p>Solid geometry  See 3/30  <b>1. Prepare for next unit on Measurement:</b> (60 minutes) MAPT Read Lagrange  Use a rectangular solid. Wrap (surface area) and then decorate a rectangular solid with the following information.  Face 1: Use a table to show calculations for volume and surface area in both English and metric.  Face 2: Use a map to show the mathematician's travels.  Face 3: Make a connection to something we have studied.  Face 4: Identify important visual or information from the text.  Face 5: Draw or print from the internet a picture of the mathematician. Include lifespan.  Face 6: Your <b>choice</b></p>
3/18	<p><u>NCTM Standard: Geometry</u>  I Math Routine and Review of Assignments  II Geometry  III Models of Teaching  IV Assignments  V. Closure  <b>37. i) Suppose that a 10 x 10 x 10 cm cube is painted brown and then cut up into 1 x 1 x 1 cm cubes. How many of the cubes have 3 painted faces? 2? 1? 0?</b>  <b>j) If a large cube is dipped in paint and then cut into unit cubes, what is the formula for finding each # of painted faces?</b></p>	<p><b>1. Complete Team Lesson Plan 1. (60 minutes)</b>  TBA (60 minutes)</p>
3/21	<p>I Clinical Experience at Swift School</p>	<p><b>1. Reflection on Lesson (20 minutes)</b>  TBA (100 minutes)</p>
3/13	<p><u>NCTM Standard: Algebra:Patterns</u>  I Math Routine and Review of Assignments  II Patterns  III Models of Teaching  IV Assignments  V. Closure  38. 1b, c, d, e, f's, e, m, n</p>	<p>TBA (120 minutes)</p>
3/25	<p><u>NCTM Standard: Algebra: Variables</u>  I Math Routine and Review of Assignments  II Variables  III Models of Teaching  IV Assignments  V. Closure  39. 1, a, i, k, t</p>	<p><b>3. Complete Team Lesson Plan 2. (60 minutes)</b>  TBA (60 minutes)</p>

3/28	I Clinical Experience at Swift School II. Closure 40. (13 h – r)	<b>1. Reflection on Lesson</b> (60 minutes) <b>2. Reinforce today's lesson:</b> (60 minutes) Geometry concepts from COUNTDOWN <a href="#">Complementary/Supplementary Angles: Definition</a> Explain the need for vocabulary instruction for these concepts. <a href="#">Complementary/Supplementary Angles: Computation</a> Make an activity sheet for either one of the concepts. The activity sheet should be in three parts: whole numbers, fractions, decimals. Each part should have 5 problems, sequenced from easy to difficult. (Be careful not to make the same mistake I made.) <a href="#">Congruent Angles</a> Make an activity sheet with 4 intersecting line problems. Give the measure of only one angle. Sequence your problems from easy to difficult.
3/30	NCTM Standard: Algebra:Solving Equations and inequalities I Math Routine and Review of Assignments II Solving Equations III Solving inequalities IV Assignments V. Closure	<b>Study for Quiz #5</b>
4/1	Easter Break	
4/4	Easter Break	
4/6	NCTM Standard: Measurement I Math Routine and Review of Assignments II Measurement III Assignments IV. Quiz #5 V. Closure 42. ( 16 a – h )	1. <i>The Man Who Counted</i> (20 minutes): Read Chapter 11. Describe the progression of mathematics. Illustrate one of the ideas in the chapter. 2. Jacobs Set I p 310 (30 minutes) TBA (70 minutes)
4/8	NCTM Standard: Measurement I Math Routine and Review of Assignments II Measurement III Assignments IV. Closure 44. ( 16 j – k )	<b>3. Complete Team Lesson Plan 3.</b> (60 minutes) TBA (60 minutes)
4/11	I Clinical Experience at Swift School II. Closure 43. ( 16 l - n )	<b>1. Reflection on Lesson</b> (60 minutes) TBA (100 minutes)
4/13	NCTM Standard: Measurement I Math Routine and Review of Assignments II Measurement III Assignments IV. Quiz #5 V. Closure 44. ( 18 a – e )	TBA (120 minutes)
4/15	NCTM Standard: Measurement I Math Routine and Review of Assignments II Measurement III Assignments IV.Closure 45. ( 17 e, f, a, k )	<b>3. Complete Team Lesson Plan 4.</b> (60 minutes) TBA (60 minutes)
4/18	I Clinical Experience at Swift School II. Closure 46	<b>1. Reflection on Lesson</b> (10 minutes) <b>2. Study for Quiz #6:</b> TBA (90 minutes)
4/20	NCTM Standard: Measurement, Geometry, Algebra I Math Routine and Review of Assignments II. Models of Instruction II Measurement III Algebra: The Balance IV Assignment V. Quiz 6 VI Closure 47 (17 a, b, c, d)	I. Writing algebra riddles (30 minutes) a) Follow the directions o page 92 to create a <i>Pattern Block Riddle</i> b) Follow the directions on page 5 to create a <i>Bean Riddle</i> c) Follow the directions on page 15 to create a <i>Coin Riddle</i> . TBA (90 minutes)

4/22	<p>NCTM Standard: Algebra and Problem Solving</p> <p>I. Math Routine and Review of Assignments</p> <p>II. Models of Instruction</p> <p>III Algebra: Pattern to Graph to Equation--Differentiation</p> <p>V. Assignments</p> <p>VI Closure</p> <p><b>Solve the problems demonstrated by your colleagues today.</b></p>	<p><b>1. Problem solving</b> (60 minutes)</p> <p>1. Numeration Systems p 82; 2. Measurement p 115; 3. Science p 199; 4. Number &amp; Operations p 201; 5. Social Studies p 224; 6. The Arts: Musical notes (song)</p> <p><b>2. Complete Team Lesson Plan 5.</b> (60 minutes)</p> <p><b>3. Write thank you letter</b> Use the same guidelines as you used to write your letter to the fifth grade teacher. Add two additional paragraphs.</p> <p>analyze the data from service learning</p> <p>your thoughts on including service learning in the middle school curriculum</p>
4/25	<p>I. Clinical Experience at Swift School</p> <p>II. Closure</p> <p><b>What are the 4 steps in service learning. Give an example of how you operationalized each one during your clinical experience.</b></p>	<p><b>1. Reflection on Lesson</b> (30 minutes)</p> <p>TBA (90 minutes)</p>
4/27	<p>Semester Review Through Problem Solving</p> <p>Presentations, Representations</p> <p><b>Model: Set III p 419</b></p> <p>Set III p 82</p> <p>Set III p 190</p> <p>Set III p 206</p> <p>Set III p 198</p> <p>Set III p 434</p> <p>Set III p 44</p> <p>#2 p 321</p> <p>Set III p 166</p>	<p><b>1. Study problems from today.</b></p> <p><b>2. Study for exam</b></p>
4/29	Semester Review Through Math Party	<b>1. Study for exam</b>
	<b>Final Exam</b>	
5/2	9-11 or	
5/7	1-3	