Tashia Hernandez

Case Study

Fall 2015

**Section 1 Contextual Factors**

* Description of school context

 \*Academic Magnet School is located in the heart of a large urban area, and has been there since 1975. The school contains a health clinic which is available to its students and their families. In 2012, the school had a total of 805 students in Kindergarten to Fourth grade, according to elementaryschools.org. Today, the school has a population of around 900. The census from 2012 found that the school consisted of 80% Hispanic students, 14% were Caucasian, 3% were African American, and 1% were American Indian. The number of students on free or reduced lunch is 88%. Although the principal did not have the exact percentages of the school’s population, she concluded that the statistics are relatively the same today.

\*Name has been changed for privacy. <http://elementaryschools.org/directory/ne/cities/omaha/spring-lake-magnet-center/317482001435/>

* Description of class context

 There are twenty-five students in the fourth grade class that looped with the teacher from third grade. This includes ten boys and fifteen girls. Since all of the students have been in the same class with the same teacher since third grade, they all have a solid understanding of procedures and expectations of the classroom. There are currently two students with Individual Education Plans (IEP) for labeled learning disabilities, and a third student is currently in the process of acquiring an IEP. The two students are pulled two times a day for assistance from a resource teacher. Fifteen of the students are labeled as ELLs (English Language Learners). Due to the school having a high population of ELL students, these students are not pulled out for ESL services. Instead, an ESL teacher comes into each class during an assigned time on certain cycle days to assist the students as needed. One student, whom is new to Omaha Public Schools (OPS), was tested for English language help, and scored low enough to qualify for ESL (English as a Second Language). This student has quickly acclimated to the rest of the students, classroom procedures, and the curriculum.

 Last year in third grade, the students mastered their multiplication facts. During this second chapter (‘Multiply by 1-Digit Numbers’) that we are covering in Math, the students will continue to work with multiplication. The class will be doing hands-on activities, group work, learning new information and applying these skills in order to build onto their prior knowledge. Each day the students will learn one or more new skills that will help them to have a better understanding of multiplying greater numbers. Students will work with partners and groups in order to learn from their peers. There will also be whole group instruction and discussion. Students will complete homework assignments and other independent work throughout the unit.

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| # of Students  | Developmental Data  | Learning Style | Objective Anecdotal Notes |
| 15 | English Language Learners | All of our ELLs know enough English to hold a conversation, but academic language is difficult for them to understand.  | The CT and I often use a combination of English and Spanish during Instruction to ensure that they are understanding the content that is being taught.  |
| 2 | Individual Education Plans | These students are hard workers and try no matter how difficult a task may be for them. They are both working below a fourth grade level and are pulled out of the classroom multiple times a day, which makes it difficult for them to complete work in our classroom.  | These students should continue to receive assistance from their resource teacher in order to be successful in the resource room, and in the general education classroom.  |

* Implications these factors may have on instructional planning

This class has shown a strong demand for the need to work with partners, as it allows them time to socialize and prohibits them from losing focus. This includes the students who are on IEP’s and ELLs but also many others in the class. The chapter can be extended if more time is necessary to complete lessons or to understand a skill better. As the teacher, I will be available to meet with the struggling students while they are completing independent activities.

I am planning on building activities that students will have the ability to work with others in order to have assistance without it needing to be me. However, I also will have the students complete activities on their own so I can gauge their learning. I will have informal assessments throughout the unit as well as some formative assessments that I will collect to judge learning. I will give the students a short pre-assessment that will require them to show what they already know about multiplication. Their final assessment will consist of the material that we have covered in the chapter. The activities may need to be adjusted for both higher and lower level learners.

**Section 2 Learning Goals/Outcomes**

* Description of and background of learning goals selected

Within this unit students are supposed to be learning what how to multiply a one digit number by one, two, and three digit numbers. They will learn various strategies to help them master these concepts as we go along. We will discuss story problems, estimation, Distributive Property, and partial product. Every day, the students will complete a Daily Math Review, which will consist of two to four math problems, as an anticipatory set to retain the knowledge that they have acquired. A few other tools will be introduced to the students but examined more in the future.

I will know (knowledge): how to use multiplication and regrouping strategies to complete a “Show What You Know”.

I will be able to (skill): complete the pre-test

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

I will know (knowledge): how to transform a comparison statement into a multiplication equation.

 I will be able to (skill): write and solve multiplication equations.

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

I will know (knowledge): how to multiply tens, hundreds, and thousands by whole numbers through 10.

 I will be able to (skill): draw pictures to help solve equations.

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

MA.4.1.3.c Multiply two-digit whole numbers

I will know (knowledge): how to estimate products by rounding and determine if exact answers to multiplication problems are reasonable.

 I will be able to (skill): estimate all original multiplication problems in order to check my answers.

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

MA.4.1.3.c Multiply two-digit whole numbers

MA.4.1.4. Estimation: Students will estimate and check reasonableness of answers using appropriate strategies and tools.

I will know (knowledge): how to use the Distributive Property to multiply a 2-digit number by a 1-digit number.

 I will be able to (skill): use base ten blocks to help me solve problems.

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

MA.4.1.3.c Multiply two-digit whole numbers

I will know (knowledge): how to use expanded form to multiply a multidigit number by a 1-digit number.

 I will be able to (skill): draw a picture to help solve problems.

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

MA.4.1.3.c Multiply two-digit whole numbers

 I will know (knowledge): how to use place value and partial products to multiply a multidigit number by a 1-digit number.

 I will be able to (skill): use the multiplication strategies I have learned to complete a “Show What You Know”.

MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.

MA.4.1.3.c Multiply two-digit whole numbers

**Section 3 Description of Assessment Plan**

* Describe what and how you will assess

Skills will be assessed differently depending on what type of lesson is used to teach the material. Some work will be graded on participation while others will be checked for correct answers. Some lessons do not have a completed activity so this day will be counted toward the participation and effort grade.

* Differentiation for individual needs

The work will be altered to fit the needs of the learner, especially for ELLs. Group activities will be used when the task is too demanding for one student to complete. However, some of the activities do need to be completed by students who struggle, but teacher assistance can be offered as needed except on the tests. The students on IEP’s are able to participate in the class but sometimes their Resource time removes them from the classroom.

**Summary Chart of Assessment Goals**

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| ***Learning Goal*** | ***Assessment*** | ***Assessment*** ***Documentation Format*** | ***Differentiations******Including modifications/ accommodations*** |
| Objective #1I will know (knowledge): how to use multiplication and regrouping strategies to complete a “Show What You Know”. I will be able to (skill): complete the pre-test | Pre-assessment | Take pretest\* to determine what students already know about multiplication.  | Read test aloud to all students. Check on students who have IEP’s to repeat as necessary.  |
| Formative Assessment | After pretest ask students what they already know about multiplication and their strategies they used.  | N/A |
| Summative | \*Pretest   | Read test aloud to all students. Check on students who have IEP’s to repeat as necessary. |
| Objective #2I will know (knowledge): how to transform a comparison statement into a multiplication equation.I will be able to (skill): write and solve multiplication equations using counters. | Pre-assessment | \*Pretest | Read test aloud to all students. Check on students who have IEP’s to repeat as necessary. |
| Formative Assessment | Students will use counters to help them model the sentences and then transform the sentences into multiplication equations.  | Students who struggle will work with their peers to accomplish the task.  |
| Summative | Students will read a comparison statement and turn it into the proper equation and record in their Math notebooks. | Students will use their counters to assist them. Check on students who have IEP’s. |
| Objective #3I will know (knowledge): how to multiply tens, hundreds, and thousands by whole numbers through 10.I will be able to (skill): draw pictures to help solve equations. | Pre-assessment | Daily Math Review- Solve problems given by the teacher that consist of materials from the previous day. | I will walk around to check on all students.  |
| Formative Assessment | Students will draw pictures to help them solve the equations.  | Small group activity. Lead by teacher.  |
| Summative | Define ‘basic fact’ in Math notebook. | Students may work with shoulder partner to complete this.  |
| Objective #4I will know (knowledge): how to estimate products by rounding and determine if exact answers to multiplication problems are reasonable.I will be able to (skill): estimate all original multiplication problems in order to check my answers. | Pre-assessment | Daily Math Review- Solve problems given by the teacher that consist of materials from the previous day. | I will walk around to check on all students.  |
| Formative Assessment | Students will estimate all equations before solving.  | Work in groups to find estimate and solve for product.  |
| Summative | Define the term ‘estimate’ in their Math Notebooks.  | Students may brainstorm with peers to complete the information. |
| Objective #5I will know (knowledge): how to use the Distributive Property to multiply a 2-digit number by a 1-digit number.I will be able to (skill): use base ten blocks to help me solve problems. | Pre-assessment | Daily Math Review- Solve problems given by the teacher that consist of materials from the previous day. | I will walk around to check on all students.  |
| Formative Assessment | Show students how to use base ten blocks to help them solve the problems. | Students will complete their work with shoulder partners. |
| Summative | Define ‘Distributive Property’ in Math Notebooks.  | Work with small group to define math terms. |
| Objective #6I will know (knowledge): how to use expanded form to multiply a multidigit number by a 1-digit number. I will be able to (skill): draw a chart to help solve problems. | Pre-assessment | Daily Math Review- Solve problems given by the teacher that consist of materials from the previous day. | I will walk around to check on all students.  |
| Formative Assessment | Draw a chart to help break down numbers into expanded form to solve equations.  | Small group discussions. All should give input.  |
| Summative | Write definition of ‘expanded form’ Math Notebook. | Students will work independently and I will assist them as needed. |
| Objective #7I will know (knowledge): how to use place value and partial products to multiply a multi-digit number by a 1-digit number.I will be able to (skill): use the multiplication strategies I have learned to complete a “Show What You Know”. | Pre-assessment | \*Before the Assessment, ask the students to share and quickly discuss the different strategies we have been learning. | N/A |
| Formative Assessment | \*Post Test | N/A |
| Summative | Post Test  | I will walk around to check on all students.  |

\*Pretest was given before any instruction on the unit and the Posttest was given after all instruction was given on the unit. The two tests were then compared to gauge student learning. Therefore, many of the summative assessments were assessed through these two tests.

**Section 4 Design for Instruction**

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| **LESSON/ACTIVITY INFORMATION** |
| **Title: Multiply by 1-Digit Numbers** |
| **Your name:** Tash Hernandez | **Age or Grade Level:**4th | **Integrated Disciplines/Subjects:**Math | **Time frame for Lesson:**40 minutes |
| **STANDARDS, OBJECTIVES, ASSESSMENTS & MATERIALS** |
| [**Nebraska State Standards**](http://www.education.ne.gov/academicstandards/index.html)**;** [**Nebraska Early Learning Guidelines**](http://www.education.ne.gov/OEC/elg.html) **and** [**NET-S**](http://www.iste.org/docs/pdfs/nets-s-standards.pdf?sfvrsn=2) **(as appropriate for the lesson):**NE Standards: MA.4.1.3 Computation: Students will compute fluently and accurately using appropriate strategies and tools.SC K-12.1Indicators 2.1.1.a-f |
| **Objectives:** I will know (knowledge): how to use multiplication and regrouping strategies to complete a “Show What You Know”. I will be able to (skill): complete the pre-test |
| **Assessment:**Students will complete a “Show What You Know” that consists of multiplication problems. |
| **Materials:*** Scratch paper
* Pencils
* Test
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** Instruct the students that they will be completing a quick worksheet that just shows what they know so that I know what I need to teach them.  |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**Instruct the students to get their pencils. Give each student a piece of scratch paper show their work. I will then read over the questions on the worksheet and try to clarify any questions the students may have without giving them the answers. I will instruct the students to work on IXL once they have finished, then instruct them to begin and work independently.  | **Student will do:**The students will follow the directions and ask any questions they may have. Once they have begun to complete the pretest, they will not work with partners nor talk to anyone. Once they have finished, they will log onto IXL and work quietly. |
| **Closure:** After all students have completed their pretest, I will pick up all of the tests. We will review the questions on the “Show What You Know” and students will share with the class the different strategies they used to solve the problems. |
| **Differentiation:**During the test, students who have difficulty reading may have a teacher read the instructions to them as they work on the pretest. Students who have difficulty sharing their thoughts verbally, may show their work on the board if they choose to share with the class.  |
| **LESSON ANALYSIS** |
| **Content Knowledge:** N/A **Teaching Methods/Strategies:** Independent Work |
| **REFLECTION** |
| It was interesting to see the students’ different methods of solving for multiplication equations. While some were very time consuming, others were new to me and useful to the entire class.  |

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| **Objectives:** I will know (knowledge): how to transform a comparison statement into a multiplication equation.I will be able to (skill): write and solve multiplication equations using counters. |
| **Assessment:**Students will read a comparison statement and turn it into the proper equation and record in their Math notebooks. |
| **Materials:*** Go Math!
* Math Notebooks
* Counters
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** The teacher will give a set of counters to all students. She will then read the following comparison statement to the students, “Lee has 4 pins. Kaya has 2 times the pins. How many pins does Kaya have?” The students will use their counters to model and solve the equation. The class will discuss how they came up with the correct equation for the statement. The teacher will then go on to model the correct way to solve the equation.  |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**The teacher will give the students more comparison statements to model using their counters. As the students find the products to the equations, the teacher will ask them to volunteer to share their equations with the class.  | **Student will do:**The students will use the tools that have been given to them by the teacher to solve for each comparison statement. The students may discuss their work with their partner if they have any questions. The students will raise their hand to volunteer to share their products. The students will model their process of solving the equation. |
| **Closure:** The teacher will ask the students to rate how comfortable they are with the material they have just learned by giving a ‘thumbs up’ if they are comfortable, a ‘side thumb’ if they are comfortable only if they are working with a partner, or ‘a thumbs down’ if they’re completely unsure about what they have just learned. |
| **Differentiation:**Students who have difficulty writing their thoughts down, may work with a shoulder partner. |
| **LESSON ANALYSIS** |
| **Content Knowledge:** Students must understand how to multiply in order to be successful with the content. **Teaching Methods/Strategies:** The teacher will use a combination of group work and independent by allowing the students to work with partners as needed and calling them up to the front of the class to model their methods of solving equations.  |
| **REFLECTION** |
| This lesson went really well! While some of the students were familiar with their multiplication facts, others were having difficulties remembering. As we worked through each comparison statement, the students began to remember their facts and how to solve if they do not know the product of an equation. The students caught on rather quickly with the use of the counters. If they would not have had the manipulatives, I do not think they would have been as successful.  |

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| **Objectives:** I will know (knowledge): how to multiply tens, hundreds, and thousands by whole numbers through 10.I will be able to (skill): draw pictures to help solve equations. |
| **Assessment:**See Closure. |
| **Materials:*** Math Notebook
* Pencils
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** Students will complete the Daily Math Review, which reviews materials from previous lessons. |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**Write the equation 9 x 5 on the Smart Board and ask students to find the product. The teacher will then discuss the answer with the class and everyone will write 45 as their answer. We will go on to solve for the equation 9 x 50. Discuss with students that they will have to solve for the Basic Fact in order to make this equation less difficult. The teacher will underline the Basic Fact, 9 x 5. The teacher will then instruct the class to write 45 as their product and to add the zero from the greater factor, 50. The Teacher will continue to follow these steps as the students solve for 9 x 500; 9 x 5, 000; 9 x 50, 000. | **Student will do:**The students will follow the directions and ask any questions they may have. As we are working through the problems, the students will raise their hands to participate. The students will write in their notebooks and follow along as the class solves the problems together.  |
| **Closure:** The students will define the term, “Basic Fact” in their math notebook.  |
| **Differentiation:**I will walk around to help students as needed.  |
| **LESSON ANALYSIS** |
| **Content Knowledge:** Multiplication facts**Teaching Methods/Strategies:** The teacher will use a combination of group work and independent by allowing the students to work with partners as needed. |
| **REFLECTION** |
| This turned out to be a fun lesson as the students had a great time solving these equations. As they began to solve for the higher problems, many of them mentioned that they felt like they were in high school, which made them feel very special and intelligent.  |

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| **Objectives:** I will know (knowledge): how to estimate products by rounding and determine if exact answers to multiplication problems are reasonable.I will be able to (skill): estimate all original multiplication problems in order to check my answers. |
| **Assessment:**See Closure. |
| **Materials:*** Math Notebook
* Pencils
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** The class will practice estimating to the nearest tens, hundreds, thousands, and ten thousands.  |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**The teacher will instruct students to write 48 x 3 in their Math Notebooks. The students will then be instructed to estimate the greater factor of the equation. As a class we will round 48 up to 50. As a class, we will then solve for 50 x 3. Once they have solved for their estimation equation, they will then solve for the original equation. The teacher will guide the students to look at their products for each equation and compare them to see if they are close to each other. If the answers are close, then they are correct. | **Student will do:**The students will follow the directions and ask any questions they may have. As we are working through the problems, the students will raise their hands to participate. The students will write in their notebooks and follow along as the class solves the problems together.  |
| **Closure:** Define the term ‘estimate’ in their Math Notebooks.  |
| **Differentiation:**I will walk around to help students as needed.  |
| **LESSON ANALYSIS** |
| **Content Knowledge:** Multiplication facts**Teaching Methods/Strategies:** Group Work |
| **REFLECTION** |
| This turned out to be a difficult lesson. The students were having a hard time remembering how to estimate and were losing focus almost instantly.  |

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| **STANDARDS, OBJECTIVES, ASSESSMENTS & MATERIALS** |
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| **Objectives:** Objective #5I will know (knowledge): how to use the Distributive Property to multiply a 2-digit number by a 1-digit number.I will be able to (skill): use base ten blocks to help me solve problems. |
| **Assessment:**See Closure. |
| **Materials:*** Math Notebook
* Pencils
* Base ten Blocks
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** The class will begin by complete the Daily Math Review which consists of materials that have been covered in previous lessons. |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**The teacher will introduce students to multiplying a multi-digit number by a single digit number with the use of base ten blocks and by using the Distributive Property to distribute the smaller factor to the partial products of the greater factor. The teacher will work through 2- 3 examples with the class.  | **Student will do:**The students will follow the directions and ask any questions they may have. As we are working through the problems, the students will raise their hands to participate. The students will write in their notebooks and follow along as the class solves the problems together.  |
| **Closure:** Define the term ‘Distributive Property’ in their Math Notebooks.  |
| **Differentiation:**I will walk around to help students as needed.  |
| **LESSON ANALYSIS** |
| **Content Knowledge:** Multiplication facts**Teaching Methods/Strategies:** Group Work |
| **REFLECTION** |
| The students enjoyed this lesson because it was easy to understand with the use of manipulatives. When the students are involved and using hands-on activities, they maintain focus.  |

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| **Title: Multiply by 1-Digit Numbers** |
| **Your name:** Tash Hernandez | **Age or Grade Level:**4th | **Integrated Disciplines/Subjects:**Math | **Time frame for Lesson:**40 minutes |
| **STANDARDS, OBJECTIVES, ASSESSMENTS & MATERIALS** |
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| **Objectives:** I will know (knowledge): how to use expanded form to multiply a multidigit number by a 1-digit number. I will be able to (skill): draw a chart to help solve problems. |
| **Assessment:**See Closure. |
| **Materials:*** Math Notebook
* Pencils
* White Paper
* Colored Pencils
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** The class will begin by complete the Daily Math Review which consists of materials that have been covered in previous lessons. |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**The teacher will introduce students to multiplying a multi-digit number by a single digit number with the use of Expanded Form. The teacher will show the students how to properly fold their paper. The class will then solve for the equation 3 x 143. The teacher will guide the students as they break the greater factor into expanded form and to place each addend into the correct boxes of the white paper. The teacher will instruct the students to color each equation a different color so that they do not lose track of which they are solving for. The students will then use the Distributive Property to solve for each equation and find the partial products. As a class we will practice 2 more examples.  | **Student will do:**The students will follow the directions and ask any questions they may have. As we are working through the problems, the students will raise their hands to participate. The students will write on their white paper and follow along as the class solves the problems together.  |
| **Closure:** Define the term ‘Expanded Form’ in their Math Notebooks.  |
| **Differentiation:**I will walk around to help students as needed.  |
| **LESSON ANALYSIS** |
| **Content Knowledge:** Multiplication facts**Teaching Methods/Strategies:** Group Work |
| **REFLECTION** |
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| The students enjoyed this lesson because it was easy to understand with the use of the colored. Using the colored pencils helped the students to remember the steps since they were color coated.  |

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| **Objectives:** I will know (knowledge): how to use place value and partial products to multiply a multi-digit number by a 1-digit number.I will be able to (skill): use the multiplication strategies I have learned to complete a “Show What You Know”. |
| **Assessment:**“Show What you Know”- Posttest |
| **Materials:*** Posttest
* Scratch Paper
* Pencils
 |
| **LESSON PROCEDURES** |
| **Anticipatory Set:** The class will begin by reviewing the materials and strategies we have covered over the previous days. |
| **Input/Modeling/Guided Practice/Check for Understanding:** |
| **Teacher will do:**The teacher will read the instructions of the test aloud to the whole class. The teacher will instruct the students to work independently and quietly. I will then instruct them to log on to IXL once they have finished and work quietly as their peers finish.  | **Student will do:**The students will follow the directions and ask any questions they may have. The students will work quietly and independently. Once they have finished, they will log onto IXL and work quietly. |
| **Closure:** The students will give a thumbs up, thumbs to the side or thumbs dumb to tell how easy or difficult the posttest was.  |
| **Differentiation:**I will walk around to help students as needed. Resource students will have the test instructions read to them as they are taking the test. |
| **LESSON ANALYSIS** |
| **Content Knowledge:** Multiplication facts**Teaching Methods/Strategies:** Independent Work |
| **REFLECTION** |
| The overall scores of the posttest showed improvement in the students’ work.  |

**Section 5 Instructional Decision-Making**

 Day 1: The majority of the students felt confident about the pretest, but it was very time consuming since the majority of them did not know their multiplication facts, so they had to work out each equation by adding one factor multiple times. However, once we started to talk as a group about different strategies for solving multiplication problems, the students started to recall strategies they had learned in the past. Students began to share their methods for solving equations they did not know. By having the students share their methods for solving multiplication equations, the other students in the class learned new strategies from their peers.

 Day 2: I began the day’s lesson by posting a multiplication story problem on the Smart Board. Together as a class, we looked at each part of the story problem and crossed off the unimportant words and circled the important words and numbers. We then read aloud the remaining parts of the story problem and began to decide which operation we would use. By breaking apart the story problem, the students were able to understand how to look at a story problem when they are working independently. We then went on to work out the problem using counters. We continued practicing as a whole group, and each time I posted a story problem on the board, I used different students’ names. By doing this, I was able to keep their attention because they were eager to see whose name would be used next. After completing three examples during whole group, they moved onto working independently from their Math books. I was surprised at how quickly the students caught on, since students usually struggle with story problems.

 Day 3: On this day there was a lot for the students to take in. They learned how to multiply a single digit number by a multi- digit number. The students were given facts such as, “9 x 50”. I was a little nervous to teach this lesson, because I was sure that the students would not grasp it. We broke apart the equation by having the students find the product of the “basic fact”. I then explained to the students that the basic fact in the case of “9 x 50”, would be 9 x 5. Once they solved for the basic fact all they had to do was add on the zeros from the greater factor. After the students began to find the equations’ basic facts, they asked to me to give them “harder problems” because they wanted to see how high they could go. The students were having so much fun solving the problems as a whole class that they were giggling and practically jumping up and down to be called on to give the answer to an equation. I loved seeing the students get excited to learn! This day’s lesson turned out to be the complete opposite of what I had imagined, and I felt accomplished when it was over with.

 Day 4: In this lesson, the students had to estimate their multiplication equations in order to check their answers. I personally did not like this concept, because it confuses students since they are required to solve the original equation and the estimated equation, but I taught it since it was in the teacher’s guide. We began the lesson by practicing some rounding since the students had not done so in a while. While about half of the class quickly remembered how to estimate, the other half was struggling. I focused a little more on estimating than I should have, but I wanted my students to be successful in the day’s lesson, so I gave them that extra guidance. We then moved on to the original lesson, and while the majority of them caught on and were successful, about three of the students were still struggling with estimating.

 Day 5: In this lesson, the students had to find the product of a single digit number multiplied by a two digit number with the use of base ten blocks. I was expecting this lesson to go well, because I know that my students generally are successful when we use base ten blocks. The students quickly caught onto the strategy and were successful were working independently. The students enjoyed this lesson and had fun because they were using manipulatives. I’ve noticed that when they have fun, they generally retain the information better.

 Day 6: I was looking forward to teaching this particular Math lesson because it allowed the students to use a little creativity. We were learning how to multiply a single-digit number by a multi-digit number (that did not consist of zeros). We did this by breaking apart the greater factor into expanded form and then distributing the smaller factor to each addend. To help the students keep track of which set of numbers they were multiplying, they used white paper and colored pencils to color the problem they were working on. The students really enjoyed this activity as it allowed them the choice of what colors they wanted to use and it helped them to remember the steps for the strategy.

 Day 7: We took the post-test today. It was not the same assessment that was given for the pre-test, but had similar qualities. I could tell the review helped many students. My struggling students had the test read to them at their pace but were again a little frustrated with the test. It required them to apply their learning and I know this is not the easiest skill for them. However, it is crucial that the students experience this testing experience in order to prepare them for the state tests they will be doing in May.

**Section 6 Analysis of Student Learning**

The pretest and posttest included similar questions.

The pretest asked…

1. Create an array and find the product for the following (2 points each)

4 x 6

3 x 9

1. Find the product for the following (1 point each)

1 x 7

9 x 8

18 x 3

2 x 20

5 x 9

6 x 7

The posttest asked…

1. Create an array and find the product of 3 x 4 (2 points)
2. 6 x 5 = 30, so \_\_\_\_ times as many as \_\_\_\_ is \_\_\_\_ (1 point)
3. Find the product of : (1 point each)

15 x 5

13 x 4

7 x 80

6 x 200,000

1. Estimate. Find the product of 348 x 2 (2 points)
2. Use expanded form to find the product of 861 x 5 (1 point)

Both tests were scored out of ten points; as some of the questions were worth two points since they required two parts.

This data collected shows growth from the majority of the students. Although some students struggled before the instruction throughout the unit, they still gained strategies that have helped them to solve more difficult multiplication problems. Some students advanced from not remembering any of their multiplication facts from third grade, to being able to multiply single digit numbers by multi- digit numbers.

Pretest Percentages: 10%, 90%, 90%, 60%, 70%, 40%, 20%, 20%, 40%, 30%, 40%,10%, 20%, 80%, 30%, 60%, 50%, 80%, 70%, 50%, 50%, 40%, 40%, 40%, 60%

Posttest Percentages: 20%, 100%, 100%, 100%, 100%, 80%, 70%, 80%, 90%, 90%, 100%, 60%, 70%, 90%, 70%, 80%, 100%, 100%, 90%, 50%, 70%, 70%, 100%, 50%, 60%

Overall Growth Percentage: The average pretest score was 47.6%. The average posttest score was 79.6%. The scores improved by 32%.

**Section 7 Reflection and Self-Evaluation**

 Overall, this was a very interesting experience and while the students learned a lot I also grew in my understanding of what it means to teach children. Math can be repetitive, boring, and/ or difficult for students, so I was constantly trying to find ways to make math fun and get out of the text book. Math always been an area of struggle for me, but as I continue to teach the subject, I am growing more comfortable with it, and I have even begun to like Math myself.

 The higher-level students also improved throughout the unit. Some improvements were just by a few points. Many of the students had forgotten their multiplication facts over the summer, so they had almost no background knowledge of multiplication. In order to get those students caught up, we constantly practiced their facts with the use of flashcards during our Math rotations. The above grade level students made growth, but it was not as large because their baseline was higher. However, no one scored perfectly on the pretest so everyone had room to grow within the unit. After the pretest and posttest I sat with each student to conference with them about their scores. During this time, we discussed their errors and tried to figure out where they went wrong. The student would then make corrections to their tests in pen so that they could realize their mistake and learn from it by correcting it.

 The lessons in the textbook often used examples that were just too difficult and at times left my cooperating teacher and I puzzled. For this reason, I decided to base my lessons off of the text book, but I altered my strategies for teaching in a way that my students would be able to understand. However, we did use the text book for the students to complete independent work once they had a grasp on the content. The students would use their take home text book to complete assignments on a nightly basis. The assignments completed throughout the lesson were useful in checking for understanding throughout my teaching and knowing what needed to be reviewed more than others. We did a quick review before starting the new lesson every day and spent a large amount of time reviewing before taking the posttest.

 As we completed the hands- on activities, the students were giggling and talking with their friends about the strategies they were learning. The students were having fun in Math because they were working together to solve problems. After completing the activities I saw everyone involved and more often than not they were excited for the next lesson to start in Math. The only lesson that did not go over so well with the students, was when we practiced estimating to check the answers. The students seemed bored and confused not only because it was a difficult concept, but also because they were not using any manipulatives that day. I often find myself thinking about ways that I could have went back to teach that lesson to make it more engaging for my students.

 There have been times when I have felt like giving up this semester, but this case study has proven to me that I can help students to improve in areas where they are struggling. Although not all students had passing grades for the posttest, the majority of them made progress and gained new knowledge. My time in the classroom this semester has shown me so many aspects of teaching that I had never seen before and has helped me to grow. Working with fourth grade has challenged me to have to do deeper thinking instead of just thinking on the surface. During our class discussions, I am always surprised by my students’ vast vocabulary and knowledge and because of this, I am constantly going beyond the curriculum to find ways to meet their needs to be challenged. Their intelligence has opened my eyes to a deeper way of teaching students.