Addition of 3 and 4 Digit Numbers

Big Ideas and Standards: Addition of 3- and 4- digit numbers.

- Big Ideas: Explain in your own words the big ideas that you will focus on in this unit.
    - Apply strategies to solve traditional multi-digit addition problems and story problems.
    - Make connections between numbers to simplify addition problems.
- Common Core State Standards (CCSS): List the CCSS that apply to your unit. Be sure to explain how the big ideas connect to the CCSS.
    - **Operations and Algebraic Thinking:** Solve problems involving the four operations, and identify and explain patterns in arithmetic.
        - **3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
    - **Number and Operations in Base Ten:** Use place value understanding and properties of operations to perform multi-digit arithmetic.
        - **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

I have chosen to focus on these standards because they connect my big idea and the content I am teaching. I will be working with my students on developing strategies to solve multi-digit addition problems. They will use mental math, estimating, and knowledge of fact families to solve addition equations and word problems in the traditional number sense and using money. I believe this directly connects with standard **3.NBT.2** and my big idea which focuses on strategies and knowledge of the addition algorithm.

Another aspect of my unit focuses on the use of word problems to develop a deeper understanding of addition and a connection between math and the students' lives. Standard **3.OA.8** involves the use of two-step word problems using the four operations. We will not yet be using letters for an unknown quantity but students will develop skills in finding missing addends. They will also use rounding to check their answers and begin to develop skills in estimating sums. The concept of rounding will help students to achieve the big idea of making connections between numbers to simplify addition problems. If they can develop and connect their knowledge of our base-ten number system with the addition algorithm I believe it will make math much easier. We will also begin our unit by focusing on important math facts such as combinations of ten, doubles, and doubles + 1, these important facts will hopefully make adding three-digit numbers easier on them.

- Choose one or two Standards for Mathematical Practice from the CCSS that you will help your students focus on during this unit. Be sure to explain why you chose this practice as well as how you plan to support your students' work on developing this practice.

    - The standards for mathematical practice I have chosen to focus on during my unit of study are to *make sense of problems and persevere in solving them* and to *use appropriate tools strategically.* Students will need to be able to make sense of problems because we will be approaching addition in many different ways. Specifically making sense of the one and two-step addition story problems. I will be teaching students strategies to recognize specific

words in story problems that indicate the goal of the problem. They will also learn a variety of techniques to aid in their solving of 3 and 4 digit addition problems. I hope with my support students will be able to add each of these strategies to their tool box and understand the appropriate time to use their given strategies.

Pre-Assessment

Pre-Assessment

- Description or copy of your **Pre-Assessment**
- **Pre-Assessment** results

The pre-assessment I gave included 10 questions it mainly focused on multi-digit addition and subtraction with and without regrouping. It also included questions about estimating sums, adding and subtracting money, and one addition and one subtraction word problem. My pre-assessment was slightly longer than most because I wanted to cover all the topics we will be working on not only during my GLT but during this unit. I allotted one point for each question and gave a ½ point for students who added or subtracted correctly on the money problems but did not present their answer in correct monetary form. 21 students took the assessment, there scores ranged from 1.5/10 to 7/10 with a mean of approximately 5, 12/21 scored above a 50%.

After gathering the general data of the assessment I decided to focus my attention on the addition aspects of the assignment. Five of the questions on the assessment focused on addition; questions 1,3,4,5, and 9. Each question targeted a different skill including addition with regrouping (1), addition without regrouping(3), adding money(5), estimating sums(4), and story problem addition(9).

- 52% of students correctly answered question 1 (add with regrouping)
- 90% of students correctly answered question 3 (add without regrouping)
- 100% of students correctly answered question 5, but only 5 of the students wrote their answer using the correct form, including a dollar sign and decimal point.
- Only 1 student or about 5% of the class correctly answered question 4, they do not seem to have any concept of what estimation is.
- 1/3 of students correctly answered the word problem. This question was especially difficult because it involved a two and three digit number. All but 3 students identified this problem as addition which is promising. The two main problems I noticed were a lack of knowledge of addition facts and not writing the numbers as the correct place value.

Pre-Assessment Results

I learned a great deal from this pre-assessment. It has helped me to gage my class as a whole and look further in to the problems that certain individuals will have. I am pleased that my students understand the addition algorithm but disappointed by the number that understood addition with regrouping, as we have been working on two-digit addition with regrouping for the upcoming MEAP assessment. I was not surprised that students did not know what it meant to estimate and approached the problem as standard addition. I realize that rounding is a difficult concept for students to grasp, but hope to teach them this skill because it can really help to check the accuracy of their answers. However, I was surprised by how few students knew how to correctly write numbers in monetary form even when I had it displayed for them in the problem. I realize this is something they are not used to and I think they will pick up on it quickly once we begin instruction. I was also pleased with the fact that nearly all the students

identified that the word problem called for addition. Yet I realized a gap in their place value knowledge when a few students did not correctly line up the problem 196 + 87, students treated it as the number 870.

This information will prove very valuable when I plan my lessons. I will use it to determine how long to spend on each topic and which concepts need more modeling and guidance. This revealed to me misconceptions students have with addition and really helped me to zoom in on the issues they are having. I will also use this information to determine which students need extra help in what areas of addition. This information with guide the structure of my lessons as well as how I approach hole group and small group instruction.

Formative Assessments

- To formally assess my students throughout my unit I will use many different methods to determine how fast to move, who needs additional support, and how I can make lessons beneficial for all students. I will do this through short quizzes at the end of lessons, anecdotal records based on individual interactions or response to instruction in whole group, and whole group response through showing me on their fingers with a number or thumbs up, or on white boards.
- **Quizzes:** I will use no more than four question quizzes to determine if students understand the material of each lesson. It is often hard to see if quiet students understand when those who already know the content are answering the questions. These quizzes will give me a look at each student as an individual.
- **Anecdotal Records:** I will jot quick note of how students interact in whole group instruction, such as their participation and their answer to questions. I will also track my individual interactions with students to see how they progress.
- **Whole group response:** This strategy will be used often but will not hold as much weight. Students often look around at classmates to see the general consensus of thumbs up or multiple choice answers. For this reason I will favor students writing on individual white boards. This is a great way to see who does not understand, but often time does not tell you exactly what the problem is that they are having because they may only be displaying an answer.

Tracking Individual Student Growth

○ Throughout my unit I will track student growth in a small binder. I will keep a page for each student that looks like this:

Name:_____

Pre-assessment score:_____
Pre-assessment strengths:
Pre-assessment weaknesses:
Misconceptions:
High_____ , Mid_____, Low_____ on prior math content

Date	Are they getting it?	Why not?	What can I do?

Additional notes:

Can they use strategies to solve multi-digit addition problems?

Can they make connections between numbers to simplify addition problems?

Summative Assessment:

- Design and annotate a summative assessment for your unit. Be sure your annotations describe how each item (or part of an item) connects to the Big Ideas and Standards your unit addresses.

  The post assessment I will be using is the district mandated marking period 1 math test. This test also includes problems related to subtraction and place value. For the purpose of this assignment I will only focus on problems related to addition. Below I have listed the items that relate to my unit and are included on the assessment.

3RD GRADE MARKING PERIOD 1
Adding and Subtracting

3. At 5:00, there were 422 people in a movie theater. Paul counted 19 more people who went in after that time. How people are in the movie theater then?

A 417
B 431
C 441
D 4,311

4. **Alonzo takes 288 steps from his house to Sherry's house. He takes 327 more steps to walk from Sherry's house to the store. How many steps does it take Alonzo to walk from his house to the store?** (You may draw a picture to help you solve this problem.)

A 161
B 505
C 605
D 615

7. Solve

  486
+ 216

A 270
B 602
C 692
D 702

8. Solve 268+ 631

A 447
B 808
C 879
D 899

9**. Find the sum. 649 + 507 =**

A 1,156
B 1,246
C 1,256
D 1,346

10. Find the sum. 64 + 63 =

A 107
B 111
C 117
D 127

11. Solve

  231
+ 588

A 357
B 719
C 729

D 819

12. Find the sum.

$$\begin{array}{r} 22 \\ 87 \\ +\ 26 \\ \hline \end{array}$$

A 136
B 135
C 126
D 125

13. 296 + 453

A 759
B 749
C 659
D 649

18. Which number from the fact family completes the sentence?
6 + 8 = 14, so 14 – 8 = ____

A 22
B 14
C 8
D 6

19. Which number sentence is in the fact family for the set of numbers?
8, 9, 17

A 9 – 8 = 1
B 17 – 10 = 7
C 17 – 9 = 8
D 17 – 7 = 10

20. Which numbers from the fact family complete the sentence?

14 – 7 = 7, so __ +__ = 14.
A 7; 7
B 7; 8
C 8; 8
D 8; 7

Questions 3,4, and 7-13 deal with the first big idea of using different strategies to solve multi digit addition problems. They display the problems horizontally, vertically, with 3- numbers, and as word problems. The variety in style helps the assessor to determine the students level of mastering the content. It can help to show if they have a problem with one specific style vs. the other. Questions 18-20 focus on the big idea that numbers are related and knowing about these relationships can simplify problems.

	Answer	CCSS	Big idea
1.			
2.			
3.	C	3.OA.08	1
4.	D	3.OA.08	1
5.			
6.			
7.	D	3.NBT.02	1
8.	D	3.NBT.02	1
9.	A	3.NBT.02	1
10.	D	3.NBT.02	1
11.	D	3.NBT.02	1
12.	B	3.NBT.02	1
13.	B	3.NBT.02	1
14.			
15.			
16.			
17.			
18.	D	3.NBT.02	2
19.	C	3.NBT.02	2
20.	A	3.NBT.02	2

Section 3: Differentiation Strategies

For my high achieving students I will create extension problems if I feel they are finishing their work to early or bored in whole class instruction. I will have them create their own word problems and provide me with an answer key. I will collect this work and use some of their problems as warm- ups or in my lessons.

For students who are having struggles with their work I will have them work in a small group with my MT. These students will still be expected to follow the whole class lessons but will have a teacher nearby to check every step of their work to make sure they are doing the problem correctly.

To aid in the development of all students I will use a gradual release of responsibility program. Students will begin the addition unit with base ten blocks to aid their study. We will then move on to only myself using magnetic base ten blocks and each of them writing on their individual white boards. Lastly students will use pencil and paper to do problems in the way they will be expected to do so on a test. If I feel at any stage one student is able to move on to a more independent way of learning I will allow this to happen with my approval and monitoring.

We will also be using quite a few different visual aids and ways to engage students. I will be using base-ten blocks, unifix cubes, and mimio smart board lessons. This will really help my students with language issues and ESL students. It will also be helpful to kinesthetic learners and students who learn better with visual aids.

Supporting all Students

In my class we have two students in special education and two ELLs one of which barely speaks any English. We also have a student who is severely language impaired. This unique mix of students really challenges me to make sure I am providing each student with the support they need to master the content. As mentioned above I will scaffold instruction with both the manipulatives we use and the level of independence at which the students work. These manipulatives will be especially helpful to my ELLs and language impaired student.

To support other students in need I will make sure to actively involve them in areas where they are strong so they can gain confidence in this difficult subject matter. In areas they struggle I will make sure they are on task and check in with them more often than other students. I will also use proximity control and have the students that are struggling sit near the front of the classroom where they can focus on the task at hand.

Sequence of Lessons

Overview of the Unit

Big Idea(s)

- Apply strategies to solve traditional multi-digit addition problems and story problems.
- Make connections between numbers to simplify addition problems.

(For each day of the unit complete this section)

Date: Monday, October 22, 2012

CCSS(s): **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): Students will learn, recognize, and be able to use the terms addend and sum. Students will implement these strategies using important one digit math facts including combinations of 10, doubles, and doubles +1.

Rationale: We are just getting back into working on addition and subtraction. So far we have been doing mostly place value and MEAP review. These math facts are very important for students to know because even if they understand the algorithm not knowing their math facts can slow them down and lead to incorrect answers. Learning these important terms will also help them to recognize these unknown words in story problems.

Brief description/overview of lesson: The lesson will begin by introducing the new unit to the students. As a class we will then talk about some ways that we use addition in our daily lives. I will define and explain the terms addend and sum. I will then talk about how addition is hard for some of us and that we rely on other tools to do the math for us but, over the course of this unit I want them to learn some strategies to make math easier. Today we are going to focus on three important types of math facts: combinations of tens, doubles, and doubles +1. For some of us this is going to be very easy and for others it will be hard. We will complete a two minute one-digit addition mad minute. Each student will make themselves flash cards. I will tell them that their goal is to be able to answer these questions within 3 to 5 seconds. We will then do a I have ….who has game to practice our facts.

Materials:

- I have, who has game
- Materials to create flash cards
- 1 digit addition mad minute

Plans for Formative Assessment:

I will formatively assess students through the I have, who has game. The speed and accuracy of their response will help me to determine which students have their math facts down. I will also use their addition mad minutes to see who is capable of mental math.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**

This lesson went pretty well. I really focused on one digit addition for this lesson. I tried to stress the importance of these facts but many students think this is too easy and want to add larger numbers. I think that number sense is something that is not stressed enough in school. Students should never have to count

on their fingers to add anything +1 but some still do even in third grade. The formative assessment of the I have, who has game did not go so well. Although my students have done this before with place value some still need guidance with the activity and the math. Helping them do this took my attention away from focusing on who was counting on their fingers and who knew the facts by memory. With the mad minute information this tells me who knows their math facts not exactly who can do the math. I relied more on the pre-assessment than this lesson to tell me what level my students were at.

Date: Tuesday, October 23, 2012

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): Students will be able to identify missing addends in addition sentences through knowledge of fact families, mental math, and subtraction.

Rationale: The concept of missing addends is a powerful relationship for student to develop a deeper understanding of the relationship between addition and subtraction. Missing addends also lends itself to knowledge of fact families. Fact families are a relationship that students can begin to grasp with the connection between addition and subtraction and grow to learn that multiplication and division have the same inverse relationship.

Brief description/overview of lesson: The lesson will begin with a smart-board lesson on missing addends. Students will work through an interactive introduction to missing addends on the smart board. We will explore the brace map parts of a whole method to explain missing addeds. Students will then receive unifix cubes to visualize the equation of missing addends. We will discuss how the equation for missing addends can be used to discover fact families. We will go over a few fact families as a whole class. I will then ask students to create their own fact family as a ticket to line up for music.

Materials:
- Unifix Cubes
- Paper and pencil
- Brace map

Plans for Formative Assessment: I will formatively assess students through their ticket out the door of making their own fact family that included both addition and subtraction sentences.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
This is the lesson that I struggled the most with. In my mind the concept of missing addends is not one of addition but fits better with the subtraction category. Also I believe that students were distracted by the introduction of this topic with the manipulatives and the new way to look at brace map with math. I think they were a little distracted by all the new information and did not process the importance of missing addends very well. I decided to spend some more time working on missing addends tomorrow after talking to my MT so myself and my students can be more confident in using this way of thinking.

Date: Wednesday, October 24, 2012

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): They will use the brace thinking map to explain the part-whole relationship between missing addends.

Rationale: As mentioned above knowledge of missing addends and fact families helps students to make connections between addition and subtraction. Also it helps simplify addition and subtraction problems and their relationship

Brief description/overview of lesson: The lesson will begin with asking students to describe what we learned the previous day. I will have students roll a die to give me two numbers to create a missing addend problem; from this equation we will create a fact family as a group. I will then have students create fact families from more missing addend problems on their white boards.

Materials:
- White boards, markers, eraser
- Mimio
- Dice

Plans for Formative Assessment: I will formatively assess students through their white board responses and their contribution to the whole group conversation. I also decided to collect a ticket out the door where students created their own fact family.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
On Wednesday our math block is split into two half hour blocks so I decided to work on more missing addends during the first part and focus on fact families for the second part. Working with missing addends was better today, but I still do not feel confident in this topic as an addition skill so I chose to move on and revisit the topic when we begin our subtraction word problems. The fact family part of the lesson went well and I really liked the way my MT told me to present it. I had originally planned to only use a mimio lesson to illustrate fact families. I liked this approach because it was interactive and visual, it also had shapes and colors to help illustrate the patterns the numbers take in fact families. To reinforce the topic we used two color unifix cubes to show that the addends are two parts of a whole and by removing one of the addends from the whole we are left with the other. This greatly simplified the concept and with just a few reminders most all students successfully demonstrated knowledge of fact families.

Date: Thursday, October 25, 2012

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): Students will round numbers to the nearest 10 and nearest 100. They will

help them use mental math to find a number close to the correct answer by rounding up or down.

Rationale: Rounding is an important skill for students to be able to estimate sums and differences. The ability to round also gives students a deeper understanding of our place value system and how it works.

Brief description/overview of lesson: We will begin the lesson by telling students a story about doing math in the real world, we might not always have paper and pencil but we need to solve math problems. What can we do? I will then introduce the concept of rounding. I will explain to students why rounding is a good resource to check our math. Each student will receive a rounding board to help cue their learning. We will then watch a video of the rounding rap and have the lyrics posted on the document camera. After listening to the rounding rap we will work out a few problems together. I will have students explain their answers to me so I can see if they really understand what we are doing and why. Students will work through answers on individual white boards as I do them on the board. They will not yet do this independently.

Materials:
- Rounding board
- Rounding rap
- Rounding visual, 4 or less let it rest, 5 or more raise the score.

Plans for Formative Assessment:
I will formatively assess students through their classroom participation and how well they are staying on track. This will be an entirely new concept for them so I will not do any individual practice today.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
This is unfortunately where my unit plan had to be modified. It turns out that our end of marking period test changed and no longer required students to estimate sums. In place of this lesson we began working rigorously on 3-digit addition. We began by reviewing addition skills of carrying by practicing with base ten blocks. We had worked on a great deal of 2-digit addition for MEAP review so students were comfortable with this skill the main problem we came across was forgetting to carry into the hundreds place so students would want to keep 17 in the tens place and came up with four digit numbers. I realized this misconception and really focused on exchanging those 10-tens for a hundred.

Date: Friday, October 26, 2012

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): Students will round to the nearest 10 and nearest 100. They will estimate sums by rounding up or down.

Rationale: Rounding is an important skill for students to be able to estimate sums and differences. The ability to round also gives students a deeper understanding of our place value system and how it works.

Brief description/overview of lesson: We will be reviewing the concept of rounding today. We will begin by practicing rounding numbers to the nearest 10 and 100. We will work on these individually on our white

boards. We will practice about 10 questions and then I will see if I believe students are ready to move on. I will then show them how we can use rounding to estimate sums. We will do many examples to help students see how this is useful. Students will then work on estimating sums on their own.

Materials:
-White board, makers, eraser
- Pencil
- Rounding worksheet

Plans for Formative Assessment: I will collect their rounding worksheet and see who understand the concept and who does not.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
Again because of the upcoming marking period 1 assessment this lesson had to be modified. Our pacing guide and assessments do not match up. The pacing guide calls for the 3-digit addition and subtraction to end Nov. 30th and we will be testing both subjects for report cards Oct 30th and 31st. Friday is again another long math session so we worked on more addition and some 3 digit subtraction with regrouping. This was difficult to work in because it seemed so rushed and did not allow me to introduce subtraction in the slow way I would have liked to. I felt like I was throwing my students in the deep end and they would sink or swim. Some students had no trouble with the extra digit while others still were not confident with two digits and were quite confused by it. This is something I have had the most trouble with in my teaching is giving each student what they need. I have about 4 students who are so great at math and will master things so quickly where as the rest of the students still need help and about 3 others are really low and need constant guidance and support to simply stay focused on the task.

Date: Monday, October 29, 2012, **LESSON 6**

CCSS(s): **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Learning Target(s)/Objective(s): Students will be able to accurately add two-digit numbers with and without regrouping. They will also be able to determine the desired math equation from a word problem.

Rationale: It is very important for students to understand how to read word problems because these are some of the problems that will apply to their lives. They will not always be told to add 4+6 but maybe I have 4 marbles and you have 6, how many do we have all together.

Brief description/overview of lesson: The lesson will begin with a review of the addition algorithm using

two digit numbers. We will make sure we remember how to do these 2 digit addition problems and if I am satisfied with student responses I will move on to story problems. We will do some story problems on the smart board starting with one digit numbers and moving on to harder questions. I will teach students key words in story problems such as all together, or more that will give us clues on how to do our problems. Students will work as a class to answers story problems. At the end of the lesson I will allow them to write a problem with their partner including an answer key, we may use in our lesson the next day.

Materials:
- Paper and pencil
- Smart board
- Key word problem words bookmark

Plans for Formative Assessment: Students will be formally assessed on their ability to create a logical story problem and give a correct answer based on what they wrote.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
This is the last day before the test so we focused on story problems but with both addition and subtraction. Again I felt this lesson was rushed. I gave students a bookmark made by the district that shows key words or phrases that are found in story problems. It lists the key words in categories of addition and subtraction to help clue students in on what operation to use. I think these bookmarks are very helpful for students and most of them could understand the problem with my guidance. I did not have students try any problems on their own because I felt they still needed a great deal of support with this skill. For me story problems are very hard to teach because I understand what the question is asking because I wrote it, however many of the students do not know what to look for and will just pull the numbers they see and guess on the operation. For this reason I am going to try to focus on students explaining why they choose to add or subtract. In the future I would like to teach addition story problems and subtraction story problems separately so students can have a solid foundation before I am asking them to distinguish between the two operations every other problem.

Date: Tuesday, October 30th, 2012 **DAY 7**

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Learning Target(s)/Objective(s): Students will be able to accurately add three-digit numbers with and without regrouping. They will also be able to determine the desired math equation from a word problem.

Rationale: It is very important for students to understand how to read word problems and pick out the important words that may clue them into what type of problem it is. Some of these problems will relate to their lives and hopefully give them a connection between math and themselves. They will not always be told to add 4+6 but maybe I have 4 marbles and you have 6, how many do we have all together.

Brief description/overview of lesson: We will begin the class with a difficult warm up story problem. Students will be asked to think-pair-share their answers to the problem. I will walk around the room and select certain students to share their work on the board. We will talk about the different student responses. We will talk through student work and explain how we got our answer.

Materials:
- List of story problems
- Paper and pencil
- Microphone

Plans for Formative Assessment: Students will be formally assessed through their answer to the high level task, how they explained their answer, and if they were correct.

Daily Reflection:
We finally got back on track after the test and worked on more story problems. I continued to use both addition and subtraction problems and began to introduce two part story problems. This was a difficult lesson to teach. I now realize that I should have eased into story problems more slowly. None of the students caught on to the second part of the word problem and were still confused even when I explained it to them. Also the students were very excited about Halloween the next day and had trouble focusing. After this lesson I realized that we will need a lot of work on story problems.

Date: Wednesday, October 31, 2012 **Day 8**

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction

Learning Target(s)/Objective(s): Students will be able to add 3- and 4- digit numbers with and without regrouping.

Rationale: This is one of the four main skills that students need to progress in their math career. Addition is a foundational skill that is built upon in multiplication, geometry, and algebra. Students' having a sound knowledge of the algorithm and the ability to apply it to any number of digits is a skill I hope for students to have.

Brief description/overview of lesson: We will introduce the concept of 3-digit addition with and without regrouping using our base ten blocks. Students will be able to visualize the process of addition and be reminded of how regrouping works. I will try and get some sort of smart board lesson or video to implement this instruction. We will do a quick four question quiz to see where students are at and what misconceptions they have, and what we need to work on.

Materials:
- Smart board lesson
- Base ten blocks
- Addition mats
- Paper and pencil

Plans for Formative Assessment: We will collect a four question mini quiz and check for individual student understanding.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
We did a short math lesson on Halloween. Students just worked on a 3-digit subtraction worksheet. To assess students I checked their problems as they finished a row. I was able to figure out students misconceptions based on their answers and spent some time working with individual students to fix these problems. This really helped me to see what problems students were having and what I needed to work on. Unfortunately this was easy for some students and difficult for others. When some students were finished I had them check other students work so I had more time to work with struggling students. I found this extra one-on-one time helpful but did feel bad that my high students were just checking other students work. I want to encourage their intelligence but do not want them to get to far ahead of the other students so they are always bored.

Date: Thursday, November 1, 2012 **Day 9**

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. **3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Learning Target(s)/Objective(s): Students will be able to add 3- and 4-digit numbers with and without regrouping. Students will be able to find specific clues in word problems that will tell them what they need to do for each problem and be able to find the correct math problem and answer based on a story problem. Students will be able to write numbers in monetary form and keep this form consistent throughout the addition process.

Rationale: Story problems help to make math relevant to student's lives. They relate things that could really happen in their lives to the math that we are doing in class.

Brief description/overview of lesson: We will begin by working on adding some 3 and 4-digit numbers with and without regrouping we will work on these as a class then do some independently on their white boards. We will then work on some story problems and towards the end give students a story problem that involves money and see how they approach it.

Materials:
- 3 and 4 digit addition worksheet
- White boards, markers, and erasers
- Pencil and paper

Plans for Formative Assessment: I will formatively assess students based on their white board responses and their turned in money story problem question.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
This lesson went quite well. A big part of the second grade curriculum is money so students were familiar

with monetary form. They just seemed to not know its importance. I introduced the decimal point and dollar sign and students brought up the cents sign which helped to bring forward a misconception many of them had. The difficult part for them was remembering that there always has to be 2 digits after the decimal point no matter what. I think they are more interested in money than regular numbers because it is more relevant to their lives.

Date: November 2, 2012 **Day 10**

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. **3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Learning Target(s)/Objective(s): Students will be able to figure out the math problem each story is asking for and use the addition algorithm to find the correct answer. They will add using correct monetary form.

Rationale: Money is perhaps the most relevant piece of mathematics for students. They will always be earning money and spending it. Knowing their math can help them to know how much they are spending and how to budget their money.

Brief description/overview of lesson: Students will work on a few story problems. The first few we will do as a group picking out key words. Then they will do some individually. If I feel students have a good grasp of adding normal numbers in word problems I will introduce to them how to add amounts of money. I will introduce the form that uses a $, ., and cents symbol. I will explain to them how to add and keep the decimal in the right place. I will have students do a quick quiz with 4 problem including money and regular number form.

Materials:
- Story problems
- Paper and pencil

Plans for Formative Assessment: I will collect and analyze the students quick quiz to see how well they understand the concept of adding money and if they have mastered 3 and 4 digit addition with and without regrouping.

Daily Reflection: (this section will be blank in the rough draft of your unit**)**
I did not end up using fake money because we did not have a set available to us, but we did do some money word problems. Students did well with the addition problems but I added in a couple subtraction problems and they struggled with this. For some reason they did not remember to regroup and borrow with money it was very strange that they kind of regressed for this style of subtraction. Also we experimented with writing them money like $10. Vs $10.00 and it really threw students off. My MT suggested doing this because she had noticed this form on past test and saw students struggle with it.

Section 5: Detailed Lesson Plans for the First Three Lessons

Date: Monday, October 22, 2012

Overall lesson topic/title: Reviewing one digit addition and introducing vocabulary.

CCSS(s): **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): Students will recognize and be able to use the terms addend and sum. Students will implement these strategies using important one digit math facts including combinations of 10, doubles, and doubles +1.

Rationale: We are just getting back into working on addition and subtraction. So far we have been doing mostly place value and MEAP review. These math facts are very important for students to know because even if they understand the algorithm not knowing their math facts can slow them down and lead to incorrect answers. Learning these important terms will also help them to recognize these unknown words in story problems.

Materials:

- I have, who has game
- Materials to create flash cards
- 1 digit addition mad minute

Procedures and approximate time allocated for each event	***Academic, Social and Linguistic Support during each event for my focus students:***
LAUNCH (Introduction to the lesson) *(10 minutes)* I will tell students that we will begin be working 3 and 4 digit addition in math. I will stress to them the importance of addition in school and in school. I will tell students that addition is something that we build upon in many types of math for example subtraction is the opposite of addition; we can use addition to check subtraction, multiplication is repeated addition, etc. I will also talk about how we use addition outside of school. For example I have $10.00 to spend at the store I need to buy milk for $3.09 and I want to buy a toy for $5.00. Do you have enough money. I will pose the problem of one digit addition in many ways. I will tell them that we have some fun activities planned but if we do not work hard we will not get to them. I will say that I need their undivided attention because we are working on a new topic and if we do not learn it now we will not be able to move on. I will give students materials after directions have been explained and once we are ready to begin each task. **EXPLORE (Outline of Key events During the lesson)**	I will demonstrate all these problems on the board as I am talking about them for my visual learners and ELLs. Giving students physical and real life examples will help all my students to realize the importance of addition and connect it to their own lives. Giving students my expectations before the lesson begins helps my students with social or behavioral issues. Also telling them they must behave or we will not be able to do the fun version of the lesson will hopefully keep them on task.

(40 minutes) Key events: - Whole class introduction and importance of addition - Introduce vocabulary addends and sum with mimio - Talk about combinations of ten as a group - Talk about doubles and doubles plus 1 - Give students flash card pack to create doubles and doubles+ 1 - Give students 2 minutes to review cards - Mad minute of doubles, doubles +1, and combination of tens - If time I have…. Who has game, with doubles and doubles +1 **SUMMARIZE (Closing Summary for the Lesson)** I will end with talking to the students about how even though this 1-digit addition may seem easy we need to finish these problems within 3-5 seconds to help simplify our 3- and 4-digit addition. We will play the I have who has game and I will tell students this is something we will continue to do as well as working on our flash cards so we can make these math facts automatic. This is our first lesson so I am just trying to make the connection between the importance of these math facts to what we will be doing for the rest of the unit. *(5 minutes)*	We are beginning a new unit so explaining the objectives we will be working on and what we want to focus on several times will help all students. Using the mimo to introduce addends and sums will help my different types of learners and hopefully get the students very engaged in what we are doing. Having them create flash cards will help my students with academic needs to have a fun way to practice their facts rather than just giving them a work sheet. Always reviewing the objectives of the lesson will help students to pick out the most important parts of the lesson.
Formative Assessment I will formatively assess students through the I have, who has game. The speed and accuracy of their response will help me to determine which students have their math facts down. I will also use their addition mad minutes to see who is capable of mental math.	***Academic, Social, and Linguistic Support during assessment*** Using two different types of formative assessment will help me with students who have different learning styles. For example some students with language issues may not do well with the I have who has but will do well on the mad minute. Others may not like the pressure of the mad minute but enjoy the fun and motivation that the I

	have who has game encourages.

Date: Tuesday, October 23, 2012

Overall lesson topic/title: Identify missing addends and discover the relationship between fact families.

CCSS(s): 3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): Students will be able to identify missing addends in addition sentences through knowledge of fact families, mental math, and subtraction.

Rationale: The concept of missing addends is a powerful relationship for student to develop a deeper understanding of the relationship between addition and subtraction. Missing addends also lends itself to knowledge of fact families. Fact families are a relationship that students can begin to grasp with the connection between addition and subtraction and grow to learn that multiplication and division have the same inverse relationship.

Materials:
- Smart board lesson
- Unifix Cubes
- Paper and pencil

Procedures and approximate time allocated for each event	***Academic, Social and Linguistic Support during each event for my focus students****:*
LAUNCH (Introduction to the lesson) *(7 minutes)* I will prompt students with a word problem that gives the sum and one of the addends and show them how we would write this problem with a missing addend. I will then show them how we use subtraction or our knowledge of addition facts to figure out the sum.	Giving students an example of how missing addends work will help guide their individual and whole group work. Giving students the option of addition or subtraction will help them make accommodations to their strengths.
EXPLORE (Outline of Key events During the lesson) *(30 minutes)* Key events: - Introduce missing addends - Practice problems with students	This sequence of events will give students a gradual release of responsibility. The hands on unifix cubes method and mimo

- Talk about relationship and introduce fact families with unifx cubes - Practice a few fact family mimios - Ticket out the door fact family **SUMMARIZE (Closing Summary for the Lesson)** *(3 minutes)* Students will be seeing how the relationship of missing addends can help them solve math problems that are not presented in the traditional sense. It will also lead us into the relationship of fact families. This will inform students how addition and subtraction are connected and see how their knowledge of one math fact will help them to learn four. Their ticket out the door will be to create their own fact family.	will help students with a visual and hands on approach to help with ELLs and students who struggle academically. Reviewing the key objectives of the day will help students to understand the most important part of the lesson and what they are supposed to get out of it. Repeating what you want them to learn will help out all students.
Formative Assessment I will formatively assess students through their ticket out the door of making their own fact family that included both addition and subtraction sentences.	***Academic, Social, and Linguistic Support during assessment*** Allowing students to create their own fact family will help me understand their level. This open ended assessment will allow students to create a fact family on their own level for example some students might use 1+2=3 and others may choose 8+9=17. Also allowing them to do this individually will take away any stress they might have presenting this socially to the class.

Date: Wednesday, October 24, 2012

Overall lesson topic/title: Using brace maps to understand fact families and missing addends.

CCSS(s): **3.NBT.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Target(s)/Objective(s): They will use the brace thinking map to explain the part-whole relationship between missing addends.

Rationale: As mentioned above knowledge of missing addends and fact families helps students to make connections between addition and subtraction. Also it helps simplify addition and subtraction problems.

Materials:
- White boards, markers, eraser
- 10 digit dice
- Brace maps
- Unifix cubes
- Mad minute

Procedures and approximate time allocated for each event	***Academic, Social and Linguistic Support during each event for my focus students:***
LAUNCH (Introduction to the lesson) *(5 minutes)* I will ask students to tell me about what we were learning yesterday. I will rephrase what they are saying so that it fits what I want other students to hear. I will then talk about how we think about fact families with the unifx cubes and introduce the brace map thinking map parts of a whole strategy. I will explain it using an apple then introducing how we can use it with a math problem.	Sometimes hearing your peers explain what we are learning makes it clearer than if the teacher were to say it.
EXPLORE (Outline of Key events During the lesson) *(3o minutes)* Key events: - Review fact families and missing addends - Introduce brace map with apple example - Relate brace map to fact families - Create more fact families using the brace maps and unifx cubes	Reviewing what we have learned the day before and showing how it connects will make it more relevant to students. Introducing multiple strategies to solve problems will help students find one that works best for them. We will continue to use the unifx cubes as a guide for visual learners.
SUMMARIZE (Closing Summary for the Lesson) *(5 minutes)* I will explain to students that thinking about fact families when they do their math will make math much easier. That knowing one math fact means you automatically know 3 more. Understanding this relationship can make your 3 and 4 digit addition much easier. We will do another mad minute that includes fact families.	Helping students make connections will simplify the relationship of fact families for them.
Formative Assessment	***Academic, Social, and Linguistic Support during assessment***

I will formatively assess students through their white board responses and their contribution to the whole group conversation.	This assessment is done without students knowing so they will not feel the pressure of being directly assessed for a grade. Also presenting their responses in a different way increases motivation.

Parent Involvement and Communication

Dear parents,

I am excited to inform you that I will be taking over your child's math curriculum for three weeks from October 22nd – November 9th. During this time we will be working on 3- and 4-digit addition with and without regrouping. We will be exploring different approaches to addition outside of the standard algorithm. I believe that giving students a variety of strategies to solve problems will simplify addition for them and give them a deeper understanding of addition.

We will begin our unit with reviewing important 1-digit math facts. On the first day of the unit your child will create flashcards to work on these facts. Please practice these with your child at home. When they have all their math facts memorized they will find addition with multi-digit numbers much easier.

We will also be learning about addition in context more relevant to students' lives. We will be working with story problems and money. I will be trying my best to make story problems fit the lives of my students. I would like to ask that you try and relate daily errands with story problems or money math. For example if you spend $10.00 on gas and $1.70 on coffee at the gas station ask your child how much money you spent. Seeing that these problems make sense in their lives outside of school will make learning them in school more meaningful.

Students will be receiving homework outside of their regular homework packet during this time. This homework will be no more than half sheet of paper with a few practice problems similar to the ones

we have been working on in class. Practicing math outside of school will help students grasp the concept more quickly.

Thank you for supporting your child's education.

Stephanie Scheldt