Topic for the Unit: Number Placement Grade Level: 1st

Introduction: These lesson plans help the students look in numerous ways into understanding the concept of number placement. By using something that they know, such as the shapes, what they like (the cereal), or just things that allow the ability to use manipulatives allows them to feel more connected to the lesson. In addition, since or lesson plans involve visuals it allows students to “see” what to do along with understanding what is happening. These lesson plans should give a very good representation of how many can go into a base-ten system of ones, tens, and hundreds placement.

PDE Assessment anchor:

MA.1 Demonstrate an understanding of numbers, ways of representing numbers,

relationships among numbers and number systems.

Lesson Plans: Attached

Assessment: Included with each lesson plan

Game: For each lesson plan the game will be similar but work on different concepts of the whole concept. The game is called “Around the World.” During the game, two people are playing at the same time. The teacher asks them to do something with a set of cards that she is going to show. Whoever shouts out the answer first, will go to the next person and the other will sit down. This continues until the teacher wants to stop or until they are out of cards. On the first day, students will be shown cards with multiple placements, but they will have to tell the teacher what number is in the one’s column. Once a person has done that they will go to the next person and etc. The second day will be focused on the ten’s column. The students will have to say what number is in the ten’s column, but it has to be in ten’s not just the number. For example, if the card says 38, the student would have to say 30. If the students say 3 then they will have to keep guessing until they get the correct answer. Finally on the last day of the unit plan, the game will be based on figuring out what placement the underline number is in. For example, if the card says 123 then they would have to one’s or if the card says 28 then they would have to say ten’s and etc. These would be three separate games that we would play on three separate days. In addition, these games can be used throughout the year as a good review.

Review:

All of these activities can be found under the web links section on NCTM’s Illuminations.

**Place Value Game**

This is a game for the upper age range of the Pre-K-2 category. The student must use prior knowledge of the value of the number itself and the value of the position in which it is placed. The materials used are easily developed and playing cards are a manipulative with which students are familiar. Thus, it is cost effective. The "club war" described adds interests to the game and promotes attentiveness to the board in general. For example, if a player feels they are winning they may choose to not announce an apparent "club war" which would eliminate their win. Such a strategy demonstrates the player's ability to recognize the magnitude of all their opponents' numbers. Playing this game well would be a good alternate assessment tool in the mathematics portion of the teacher's day.

Review of Place Value Game:

 This was a great activity that I found by going under the links section on illuminations. In this activity it is a game of “war.” I really like it how the students have to make their own numbers and try to make the biggest number. This will allow them to see if they put a two in the hundreds placement that they will have a hard time getting the largest number than anyone else. In addition I like it how it gave them the opportunity to practice speaking the numbers. I believe that saying the numbers while making the 3 digit numbers helps the students to understand what each placement means. Overall, I love this game and would use this in my own classroom in the future.

**Counting the Rice**

This is a hands-on and role-play activity using a story about one possible origin of place value. The activity encourages teachers to allow students to use manipulatives (such as rice or M&M's) to discover the concept of and need for place value. The students form a good understanding of place value and the base-ten number system because they are actually working with it. The students may also form an understanding of why we have a decimal system. The entire class can participate in this activity.

Review of Counting the Rice:

This activity really helps with the visual of the base-ten number system. The students have the opportunity to use other manipulatives to configure the what goes in what number placement. This activity is like our ice-cube activity, but this seems to be more free-formed. I believe that with the ice-cube activity that there is more organization going on. Our activity will probably allow students to get less confused rather than getting confused by where some of their manipulatives are in this activity. For example, the ice-cube trays keep everything lined up, but if a student does not keep everything lined up in this activity, then they could get to many manipulatives in one placement.

**Base Ten Blocks**

This Web site consists of a Java applet, where one can select any combination of three different block sizes (representing a unit, 10 units, and 100 units) and drag them into the working panel. Students can then move, rotate, break, and glue the blocks to explore base 10 place value. Clicking on the base-ten chart allows you to redefine the largest block to be the unit, opening up additional investigations of decimal numbers. And the instructions also give ideas for how this can be used for introductory algebra. While virtual manipulatives may never replace the use of physical materials, there are some advantages. First, students can actually break apart the virtual blocks to decompose them into smaller blocks or glue collections of 10 blocks together to make larger blocks. With physical blocks, one has to "trade" a collection of blocks for another block (or v.v.). Second, the system constrains the gluing and breaking of blocks, so that incorrect regroupings cannot occur. This feedback may help students stay on track as they explore base-10 arithmetic. This site could be appropriate either for individual student use (if appropriate technology, tasks, and guidance are available) or as a tool for teachers to lead a full-class discussion.

Review of Base Ten Blocks:

 I believe that this is a great activity to use that involves technology. I know in class we have done something similar, but I believe that this will help students understand placements and how you can break down numbers. For example, instead replace a ten with ten ones in class, this give the students the opportunity to see that a ten turns into ten ones. In addition, I like how this can be used individually or with a whole class. With the new technology, such as smartboards, the students can do this activity in class together in front of everyone without having to do it one at a time on the computer. I really like this activity because I believe that it will show students more. This will be a great thing to use in my own classroom some day.

Activity for home: At home students can make their own flash cards to play the same game done in class. While the family member and/or friend is showing the cards, they can keep a tally sheet of how many they got correct and how many they got wrong. The student’s goal is to get all of them correct by the end of the unit done in school. The family member/parent should make 25 flash cards to use with the child. If the student get’s 2-0 wrong out of the 25 flash cards, then the student will receive an award at school. The game should be done at least twice during the time period of the unit and for the student to receive credit the family member/friend will have to sign the tally sheet each time they use the flash cards.

![C:\Users\Allison\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\CVLZ5SBK\MC900130271[1].wmf]()

**Dear Parents/Guardians,**

 **This week will be focusing on the idea of number placement including the one’s, ten’s, and hundred’s placement. I would like to encourage you to help your child during this unit. Home help is very important to allow your child to continue their practice with concepts done at school. All I would like for your child is to grow in their learning of this concept. Any help you can give them with homework is greatly appreciated. I have provided for you 25 flash cards and a tally sheet for you to use with your child to give them extra help on this topic. I hope that you would have time to do this activity with them at least twice. This concept is very important in the growth of your child’s learning. They need to be able to understand this concept to be able to do other math in the future such as adding and subtracting. If you have any questions about this topic or need more ways to help your child, please feel free to email at abc123@wcdistrict.**

**Sincerely,**

**ABC123**

**1st Grade**

**WC School District**

Lesson Plan

**I. What**: Organize

A. Objective of lesson is having students use different shapes to resemble the different number placements to figure out what each placement means.

B. Prior Knowledge Needed: Students should know what each shape is (circle, square, and triangle).

C. Conceptual Knowledge to be taught: So that there is no confusion, the students will learn what each shape will represent rather than having many different ideas of how the shapes could represent different number placements.

D. Grouping: This lesson will be done in pairs, but each person will have to record their own answers.

E. Vocabulary to be taught: Ones, Tens, Hundreds

**II. How Start:** Opening problem, review of important ideas, activity to engage students

The teacher will hold up each shape and ask the name of each shape. Then the teacher will ask the students how many sides do each shape have.

Teach:

The lesson will start with the opening which is written above. Then the teacher will explain to the students what each of the placements are: “In each of the number placements there can only be nine in each group. Once we get to the number ten in the ones position, the one gets bumped over to the tens placement to make the number ten. Once there are ten tens in the tens placement, the one in ten gets bumped over to the hundreds placement to make one-hundred. We will just work on these placements for now and then learn more placements later in the year.” The teacher will then explain the activity that will go along the lesson. “What is this shape? (students will answer circle) We are going to use this to represent the ones placement. Now, how many circles can we have in the ones column? (students should answer 9) So what will happen if we have ten ones? (students will say that the one in one will go to the tens) Great! So we will use this shape to represent the tens placement. What shape is this again? (students will say a triangle.)” \*This will continue the same pattern until the teacher reaches the hundreds placement which will be represented by a square. The teacher will say “As the placement get bigger then there are more sides on the shape, so think that the more sides, the higher the placement.” The teacher will then do three practice problems to represent the idea of the lesson to the rest of the class. “If we have the number 6, how many shapes would we put in each column? What about the number 27? And the number 170?” After showing the examples, the teacher will split the students into pairs to work on problems. Each pair will get ten circles, 10 triangles, and 10 squares. They are to make a big visual of the number and then on the worksheet they are supposed to draw the picture they made together. In addition, under the shapes the students will write how many are in each placement and what it equals to. Example 8 triangles= 80. \*\* The closure to this lesson is found under the close and assess section.

Materials:

 10 circles

 10 triangles

 10 squares

 Worksheet

 Pencil

Questions:

1. What is this shape? (say this 3 times showing each shape “circle, triangle, and square”)
2. How many circles can we have in the ones column?
3. How many triangles can we have in the ten’s column?
4. How many squares can we have in the hundred’s column?
5. If we have the number 6, how many shapes would we put in each column?
6. What about the number 27?
7. And the number 170?
8. So what have we learned from this lesson?
9. How many shapes can go into each column?
10. What does the number of shapes represent?
11. So I can have twelve in each column correct? (see if they are paying attention)
12. If I cannot have twelve then how many can I have in each column?

Practice:

 The children will work on a worksheet that will allow them to draw pictures of the activity that is used in this lesson. The activity is done in pairs, but each student writes down the answer on their own paper. The pair just does the visual part together. Numbers will be given on a worksheet and the students will have to use the three shapes, circles; triangles; and squares, to show how many of each number can go in each placement. Once done together the students will draw the picture on their paper and label the numbers underneath their drawling. After all of the students have finished the worksheet, then the class will come back together to do the worksheet together. The students will be selected to come up and show their work from picking their name out of a can. \*Worksheet after lesson plan

**III. Close and assess**

 To bring this lesson to a strong close, I will go over the worksheet that they did by themselves with the whole class. In addition, I would select the students by drawling sticks which will make the process more random. It would allow the teacher to see the results of what other students that may not have raised their hand think the answer should be. After going over the worksheet I will ask them more questions that will be around the idea of “How many go in each placement? What does each placement represent?”

**IV. NCTM Standards:**

* understand numbers, ways of representing numbers, relationships among numbers, and number systems

**V PSSA standards addressed**

**MA.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.**

**VI. Extensions and adaptations for slower and more advanced students**

 Students that need extra help with this concept will have the ability to with each placement one at a time. For example, their worksheet may have numbers like 8, 6\_, 1\_\_. This will allow them to see each placement one at a time and should give them less of a chance to become confused. In the end they would get one where they would have to show all of the placements.

 Students that are more advanced would probably do the assignment on their own. If they are able to understand the concept of only allowing 9 shapes in each placement, then they would be free to do it be themselves. In addition, I may not give them the shapes to use, but they would just have to draw it on their paper.

**VII. Sample student output**

 \*separate sheet of paper

Name:

Date:

Number Placements

Use a partner to figure out how to represent these numbers on the paper. Once you work on it with a partner, make sure to draw the picture on your own paper and label the numbers underneath.

1. How would you represent the number **3**?

2. How would you represent the number **94**?

3. How would you represent the number **123**?

4. How would you represent the number **447**?

5. Why can there only be nine objects in each placement?

Name:

Date:

Number Placements

Use a partner to figure out how to represent these numbers on the paper. Once you work on it with a partner, make sure to draw the picture on your own paper and label the numbers underneath.

1. How would you represent the number **3**?



 3

2. How would you represent the number **94**?



 90 4

3. How would you represent the number **123**?



 100 20 3

4. How would you represent the number **447**?



 400 40 7

5. Why can there only be nine objects in each placement?

There can only be nine objects in each placement because there can never be ten objects or more in the placement. You can’t have two digit numbers in a placement.