Cincinnati Christian University

Thematic Unit

Fourth Grade Multiplication and Division

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Integrating the Arts

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Lesson Plan #1

Learning Goals/Objectives:

Students will use clue words to determine whether to multiply or divide to solve word problems.

Students will be able to multiply and divide word problems.

Common Core Content Standards:

Operations and Algebraic Thinking (4.OA.A.2): Use the four operations with whole numbers to solve problems.
Research to Build and Present Knowledge (W.4.9): Draw evidence from literary or informational texts to support analysis, reflection, and research.

Methods:

[Key: teacher says → student's actions → actions of teacher]
*Stands in front of the classroom *Good Morning everyone! We are going to go ahead and jump into today's math lesson. Today, We will be learning how to multiply and divide word problems. Now by show of hands does anyone remember what I mean when I say multiply and divided? *some students may raise their hands. * I look around to see if any students raise their hands. Then explain what multiplication and division mean. * Let's discuss multiplication and division relationships. Multiplication is like repeated addition. Division is like repeated subtraction. *writes 3x4=12, and 12÷3=4 on the board. *Can anyone tell me which problem is multiplication and which one is division? *students may raise their hands and either get the question right or wrong. *calls on the student who raised their hand first. Waits to see if the student guessed correctly. Then explain to the students the correct answer and why. This "x" represents multiplication. The ÷ is for division. Remember just a few seconds ago I said that division is like repeated subtraction? Well if you look in the division symbol it looks like it has a subtraction/minus symbol. That is a cool little trick to recognize if a problem is division or not. Does anyone have any questions so far? *wait to see if anyone has any questions. *now, what if I wrote those same problems without symbols but with words instead? Do you all think you could still determine which is a multiplication problem and which one is division? *students may nod in agree or disagreement. *begin to write multiplication and division clue words up on the whiteboard. First start with multiplication, write: Product, times, in all, double, triple, multiplied by, altogether, total and each. Go around and hand out premade foldables. *I have just handed you all your own foldable. As I continue to describe each word I want you to write down what they are and what they mean so you can refer back to your foldable incase you forget or need a refresher. All of these words can be big clues in word problems on how to solve

them using multiplication. Remember how multiplication is just addition repeated? Well when you see words like “double” or “triple” and “multiplied by,” those are clues that the number they’re referring to is going to be added by a certain amount. When you see the word “times” is basically “x” just in word form. Does anyone have any questions so far? *wait to see if anyone asks a question. *begin to write division word clues up on the board. Write: separated, average, shared, divided by, share equally/equally and same amount. *go through and explain these words. *Does anyone know what the word separated means? *look around to see if any student raises their hand. *students may respond or just sit there. *Let me explain through an example: If I have a banana and I wanted to split it with my friend Liz I would have to separate it into two halves in order for both of us to be able to eat part of the banana. It is the same thing for math. You take a number and separate it into two numbers. *draw ÷ on the board. * if you look at this sign there are two dots with a line in the middle. Those two dots Share (share equally) (*underline the word share that's already on the board.) the line in between them. The dots have the same amount (*underline same amount on the board.) Are those dots divided by the line too? *wait for students to respond. *students nod in agreement. *If I wrote an example word problem on the board could you all tell me whether it is multiplication or division? *look around wait for students response. *students will reply with either a head not or verbal “yes.” Cover up the clue words on the board then write on the board: Sally shoots and arrow 30 yards. Flame shoots an arrow three times as far. How far did flame’s arrow go? *Sally shoots and arrow 30 yards. Flame shoots an arrow three times as far. How far did flame’s arrow go? Does anyone know if this is multiplication or division? *call on a student in the class whose hand is raised. *students will guess until they figure out this is a multiplication problem. *How did you guys know this is a multiplication problem? Can someone tell me what the clue word is? *wait for students to raise their hands then choose a student randomly. *students will guess until they guess the correct word which is “times.” *good job! That is great work. Yes *walks over to the board where the clues are written. *Times was one of our clue words when it comes to multiplication. Do you all think you could find the clue word in a division problem? *looks around and nods head yes waiting for students to do it back. *students nod back in agreement. *Great! *begin to write the division word problem example on the board. Write: You have 24 cookies and want to share them equally with 6 people. How many cookies would each person get? *You have 24 cookies and want to share them equally with 6 people. How many cookies would each person get? Can anyone tell me what the clue word is? *Wait for students to guess the word “equally.” *The clue word is equally. To set this problem up to solve we need to figure out which number is divided by what. Do we divide 24 by 6? *wait for students response. *students will either nod in agreement or raise their hand to answer the question. *write on the board: 24 ÷ 6 = *can anyone tell me the answer? *students raise hands *call on student for answer, if it is correct write it on the board.

Fill in the problem: 24 ÷ 6 = 4 *so if 24 divided 6 equals 4, how many cookies will each person get? *raise hands *call on students, then write on the board under 24 ÷ 6 = 4 → Each person gets 4 cookies. * does everyone understand what we have gone over so far today? *wait for students response before moving on. *students will nod in agreement or disagreement. *For today's activity you all will create your own story book on what we have learned today. *pull out stack of pre-stapled pieces of paper and colored pencils/markers (for the story book for the students). * Now what you will do is each of you by row will come up and grab one notebook and a pack of colored pencils/markers. Once you get one go back to your seat and you can begin creating your mathematical story book. I want to see that you all understand how to tell whether a word problem is multiplication or division. I also want you all to be very creative. You can even add pictures to go along with what you right. Let's start off with this row *point to one of the rows on the end. *Come up and grab the materials you need. *students make their way up to grab what they need then returning to their seats. *patiently wait for each row to go up and collect what they need.*Give students around 15-20 minutes to do this activity. Make sure you walk around and check on students work and ask questions. Like: "what made you explain it this way?" "what does that picture you're drawing represent?" "do you need help with anything?" "do you have any questions?" *try to find one or two students who would be willing to share their story book for the last few minutes of class. * Okay students time is up. Put the pencils/markers back their boxes. For the last few minutes of class we are going to listen to (student 1) and (student 2) describe and talk about their story books and what they have learned today. *call first student up to present. *student 1 presents. *make sure other students are being respectful and listening. *student 1 finishes. *clap for student and thank them for sharing. *thank you so much (student name) for sharing! That was really cool! (student 2) come on up and show us what you have! *make sure other students are being respectful and listening. *student 2 finishes. *clap for student and thank them for sharing. *thank you (student name for sharing! That was really neat! Now that is it for today's lesson. Make sure your name is on your story book and go ahead and pass it up to the front of the classroom for me to collect. *pass story books up to the front. *start collection the story books.

Materials/Resources:

stapled storybooks
Markers/colored pencils
Foldables

Connection to Prior Knowledge:

Students will have to be familiar with multiplication and division, there is a little review of the relationships with both but, students for the most part know what multiplication and division is.

Assessment:

Before: Oral questioning
During: Solve the example equations on the board
After: Story book project

Special Needs of Students:

Enrichment: Working on the storybook by themselves with very little to no assistance. *See attached rubric

Intervention: Giving extra assistance on their storybook. *See attached rubric

Reflection:

1.) This helps their physical development because the students are using their hands to create images and words through the activity. This affects them cognitively because in order to complete the task they have to acquire the knowledge learned from the lesson. They will use their language and emotion to express what they have learned. This lesson is appropriate because not only does it help them notices multiplication and division in word problems, it also challenges them to interpret what they have learned on paper.
2.) I wanted a different way to evaluate students for this lesson. I think a story book allows them to truly express what they have learned rather than trying to score well on a test. I will evaluate the story books to make sure it has met the learning goals I have set, and I can better assess what the student understands and what they may struggle with.
3.) In this lesson the multiple intelligences are, Intrapersonal and Linguistic. Intrapersonal because they will express what the lesson means to them and how they feel about it. It is also linguistic because, they will find the right words to express what they mean.
4.) The different learning styles are: visual and verbal (linguistic).
5.) I will know if they have learned what I taught if their assessment storybook lines up with the standards I have set. I can also determine if I walk around during this activity and they are way off topic when I ask them questions throughout.

StoryBook Enrichment Assessment

Storybook Rubric	Ratings	Pts
Numbers 40-60		4pts
At least 3 Clue Words per paragraph		4pts
6 Paragraphs		2pts
Comprehension		2pts
Total points possible: 12		12pts
Teacher Comments:		

Storybook Intervention Assessment:

Storybook Rubric	Ratings	Pts
Numbers 1-30		4pts
At least 2 Clue Words per paragraph		4pts
3 paragraphs		2pts
Comprehension		2pts
Total Points possible: 12		12pts
Teacher comments:		

Lesson Plan #2

Learning Goals/Objectives:

Gain familiarity with factors and multiples

Common Core Content Standards:

Operations and Algebraic Thinking (4.OA.C.5): Generate and analyze patterns
Operations and Algebraic Thinking (4.OA.A.2): Use the four operations with whole numbers to solve problems.
Research to Build and Present Knowledge (W.4.9): Draw evidence from literary or informational texts to support analysis, reflection, and research.

Methods:

[Key: teacher says → student's actions → actions of teacher]
*Stands in front of the classroom *Good Morning everyone! We are going to go ahead and jump into today's math lesson. Today, we will be learning about factor and multiples. *teacher walks around handing out foldables for students to take notes with. * You will be using foldables again today to take notes throughout the lesson. First we have a factor. A factor is a number that can be multiplied to obtain a product. For example: *write 4 x 3=12 on board. *4x3=12 in this example *circle the numbers 4 and 3. * 4 and 3 are our factors. But, there can be more than just one factors of a number. *write 12 up on the board. *Let's take a look at the number 12. In the previous example we saw that 3x4=12. But are they the only numbers that multiple to be 12? Can anyone think of two other numbers that may multiply to be 12? * wait to see if students raise their hands. *may or may not raise their hands. *write up on the board 2x6=? 1x12=? *Can anyone tell me what the answer is to either of the problems? *look around the room to see if students raise their hands. *students may hesitate to give an answer. *Just like 4x3=12 so does 2x6, 2x6 is really two 6s added together which equals 12. If you recall to your earlier lessons of multiplication, a number that is multiplied by 1 stays the same. So *erase the question mark and right 1x12=12 then circle it. *1x12=12. Does anyone have any questions? *wait to see if students have questions. *students may or may not have any questions or thoughts. *next we are going to talk about what a multiple is. In your foldable under the word "multiple" write that a multiple is a product of two factors. The product is what is shown after the equal sign. *circle 12 from the previous examples. * In this previous example 12 is our multiple. So 12 is a multiple of 4x3, 6x2 and 12x1. Does that make sense? Does anyone have any questions? *look around to see if students have questions. *Now, what we are going to do is I am going to partner you all up and do a couple worksheets together. You and your partner will get

a worksheet on finding all the factors of a number you both will work together on thinking of all the numbers you can. The second worksheet you will do on your own and you will be solving problems. Once everyone finishes we are going to finish out today's lesson with playing a game. If you do not finish your worksheet by the time I give you is up, that will be your homework due for tomorrow. *Partner the students up by putting your higher up students in a group together and your intervention students together. 2-3 per group. Then walk around and hand out the appropriate worksheets to the correct groups. *if anyone has any questions raise your hand and I will come over to you. You guys will have 15 minutes to complete this assignment. *students begin to work together to figure out the factors of a number *walk around to make sure each student is engaging in this assignment. Make sure it is not just one person in the group doing all of the work. As questions to each group to make sure they understand the topic questions such as: How did you come up with those factors? How can you be sure they are factors of that number? What is a factor again? *okay class time is up! How did everyone do? Was that easy or hard? *wait for students responses. *students respond. *call on one or two groups to explain how they got their answers. Okay (group 1) tell me how you got your answer for the first question? *listen to response *group 1 responds. *that is great thinking! Good job. Did everyone else get that answer? *students (hopefully) nod in agreement. *Do you guys think you are ready for our game now? *nod yes waiting for students to nod in agreement. *students nod in agreement. *So the game we will be playing today is called, "around the world" has anyone heard of this game before? *wait for students response. *students nod yes or no. Let me explain how this game is going to work. Each of you individually will go head-to-head against your classmates in a game of multiplication flash cards. Two students will go at a time, you each will have a small whiteboard and dry erase markers to write your answers down. I will flip a flash card with a problem on it like 2x2, the first person to answer that problem will win that attempt and go up against another student until they get one wrong or not as quickly as their opponent. The student who gets the most answers right and beats the most people will become the around the world champion for today. Any questions before we get started? *wait to see if any students have any questions. *write the names of each student in the class up on the board to keep tali marks of how many times each person wins. *pick the first two students randomly to start the game off. *Have them come up to the front of the classroom. * first two students make their way to the front of the classroom. We will be playing this game for 15-20 minutes so it is very important that everyone stays focused and tries their best at these problems. Grab the set of flashcards, and the first students each a small whiteboard and markers. *(student 1), (student 2). Ready? Get set. Go! *flip the first flash card over. Encourage the other students not playing at that moment to cheer their classmates on. *continue this game for 15-20 minutes. *when time is up have the students return to their seats. *okay times

up! Great job everyone! Please go sit back down in your seats. *students return to their seats. *announce the over all winner *Let's add up everyone's score to see who won. *add up each students score and then say who the winner is. * looks like (student name) is our over all winner! Good job (student name). Everyone else did really well too. I am proud of all of you. *start to ask reflective questions on the game. *did you all find this game to be challenging? *wait for students response. *students will respond in agreement or disagreement. *call on a couple students randomly to see their opinion on this game (highs and lows). *(student name) can you tell me what you liked about this game? *wait for student to respond. *student responds. * that's an interesting thought. (another students name) did you find that this game made it hard to think and work through problems because there was a lot of pressure? *wait for student response. *student responds. *Did you all find this game helpful with learning about factors and multiples? *wait for student responses. *students respond. *Alright, that is all we will be doing today. Please come and turn your worksheets in on your way out. If you did not finish your worksheets they are homework that is due by the start of class tomorrow. Have a great rest of your day! You all did so great today!

Materials/Resources:
Foldables
Flash cards
White boards
Markers

Connection to Prior Knowledge:
Students will have to recall a number being multiplied by 1 does not change.
They will need to recall basic multiplication skills

Assessment:
Before: Oral questioning
During: Work sheets and oral questioning
After: "Around the World" game

Special Needs of Students:
students will be in appropriate groups for their worksheet activity (see attached)
Enrichment: Numbers will be higher (1-100) with little/no assistance from teacher
Intervention: Numbers will be lower (1-50) with assistance when needed

Reflection:

1) This will help their physical development even though they will only kind of be moving around during the game, they will still get blood flowing and use their bodies in a physical way. This will help their language because they will be learning about the words

"factor" and "multiple." This will help their social emotion because they will be working with their peers in groups and then head-to-head. I think this lesson will interest my students because they will be working individually, in groups, and then compete. This lesson builds intensity as the lesson progresses and I think students will not only learn about but enjoy this lesson.

2) I will be assessing the students throughout the whole lesson with oral questioning. But with the worksheet and the game exercise I will be able to see where the students struggle specifically or if they fully understand what I have taught.
3) I have hit the logical mathematical I have also hit a little linguistic. With the game they will have to express with their words the answer they have found.
4) The learning styles are: Visual (the game), Social (group worksheets) and Kinesthetic (worksheets and game).
5) Between the class working in small groups, working on their own and the end of the lesson game I will be able to tell throughout whether a student is picking up on what I want them to learn or not. Once I assess the worksheets they turn in I will be positive on whether they understood or not.

Factor worksheets:

Enrichment:

List the factors for each number

1.) 12 _, _, _, _, _, _

1, 2, 3, 4, 6, 12

2.) 61 _, _

1, 61

3.) 69 _, _, _

1, 3, 23, 69

4.) 6 _, _, _, _

1, 2, 3, 6

5.) 21 _, _, _, _

1, 3, 7, 21

Intervention:

List the factors for each number

1.) 21 _, _ , _, _

1, 3, 7, 21

2.) 6 _, _, _, _

1, 2, 3, 6

3.) 16 _, _, _, _, _

1, 2, 4, 8, 16

4.) 25 _, _, _,

1, 5, 25

5.) 30 _, _, _, _, _, _, _, _

1, 2, 3, 5, 6, 10, 15, 30

Solving Problems:

Enrichment:

1) 11X25

275

2) 56X30

1680

3) 16X35

560

4) 18X27

486

5) 73X16

1168

Intervention:

1) 60X8

480

2) 18X4

72

3) 30X2

30

4) 12X3

36

5) 14X5

70

Lesson Plan #3

Learning Goals/Objectives:

Interpret multiplication statements

Common Core Content Standards:

Operations and Algebraic Thinking (4.OA.A.2): Use the four operations with whole numbers to solve problems.
Research to Build and Present Knowledge (W.4.9): Draw evidence from literary or informational texts to support analysis, reflection, and research.

Methods:

[Key: teacher says → student's actions → actions of teacher]

*Stands in front of the classroom *Good Morning class! For today's Math lesson we are going to be doing things a little differently. First, we are going to review what we have learned over the past couple days, then, we will have a fun activity to finish the lesson with. *pull out the example foldables from previous lessons. *does everyone remember these? Go ahead and pull them out we will reviewing from them today. *students pull out their foldables. * Who remembers when we learned about multiplication and division? Well today we are going to review multiplication and all of the key words. I am going to give you all five minutes to review your foldable notes on multiplication and I am going to write the some things up on the board. When your five minutes is up we as a class are going to match each word up here on the board under the multiplication side. To make it a little tricky I am going to write the key terms for multiplication and division in a word bank on the board. But we are only going to be looking for the multiplication key terms. So really focus and think through each term and what it means. Go ahead and review your notes on multiplication and raise your hands if you have any questions. *students begin to review their foldables. *writes some of the key terms and concepts up on the board. Write Multiplication on one side of the board. Then create a word bank that includes: product, times, in all, double, triple, multiplied by, altogether, total and each (these are all multiplication) then continue to write: separated, average, shared, divided by, share equally/equally and same amount (these are all division). After all of the words are written in a word bank on the board explain to students what it is for.
*I have given you all a word bank to help you out. Since there is a word bank, I am not going to allow you to use/look at your foldables until we finish reviewing. Go ahead and put them away please. *students put away foldables. *Now, each of you will come up one by one and put a word under multiplication Once a word is used I will cross it off the board. I will not confirm whether you are correct or incorrect in your word placement until the very end, when all the words have been used there are nine multiplication

words. With that being said, if one of your classmates puts a word up on the board, if you think/know it is not right, when it is your turn you can switch it if you would like. But, each of you get to only put one word up at a time. So if you switch a word that will count as your turn. Once all the words have been used, we will discuss as a class whether they are under the right or wrong side and why. Does anyone have any questions before we get started? *students may or may not have any questions. *Alright, let's get this started! *calls on first student *(student name) You're going to be first! You go this! *students one by one go up and place their guess of which word goes where. *be sure to encourage each student as they go up to the board. Give them that extra boost of confidence. *After all the students finish, check the board to see if they were right or if they missed a few. *You all did so well! Awesome Job! *if any words are wrong ask the class about that specific word say something like, "Are we sure this word goes under this one? Can anyone tell me what this word means? If they got some wrong let them know it is okay, stay positive. *Was that easy or harder than you expected? *waits for students to raise their hand. *students raise hands *calls on a student *(student name) what did you think about it? *student gives personal opinion *by a show of hands does anyone agree with (student name)? *waits for students response. *students respond. * Does anyone have any final questions before we move on? *waits for students response. *students may or may not respond. *Now we reviewed these words because, for today's activity you will be walking around our classroom answering questions that will use these key terms of multiplication. Today's activity is kind of like a scavenger hunt. The worksheet you will get will have questions like *write "how many pens can you find of Ms. Dean's desk? What is that number if it is tripled?" * How many pens can you find on Ms. Dean's desk? What is that number if it is tripled? Then once you answer each question I would like for you to circle the key word. Other questions may be a little bit more tricky *write on the board " What can you add from your classroom to make 3x something = 12?" * what can you add from your classroom to make 3x something = 12? This means you need to figure out that 3 times what equals 12, then once you find the answer which is 4 you have to find something in this room that has a group of four. For instance there are *point to the board *four magnets on the board. So your answer would be *write 3x4=12 and I found four magnets on the whiteboard. * 3x4=12 and I found four magnets on the whiteboard. Does this make sense? *wait to see if students have any questions. *students may or may not have questions. The last thing you will do is the final question is your reflection on this activity, what you liked or did not like, and what you learned from it. Is everyone ready to get started? *students nod in agreement. *okay awesome. *walk around and hand each student their own scavenger hunt worksheet. *once you get your worksheet grab a pencil and you may begin your scavenger hunt. *Students are walking around the classroom to complete their scavener hunt. They may or may not approach the teacher with any questions *give students

around 20-25 minutes to complete this activity. *walk around throughout and ask students questions to make sure they understand what they are doing. Questions like, “what does (keyword) mean?” “how did you come up with that answer?” *Once time is up have ask the students to return to their seats. *Okay everyone time is up. Please return back to your seats. *students return to their seats. *how was that? Did everyone finish? *waits for students responses *students will either nod in agreement or disagreement. * Does anyone want to share with the class a problem they did and how they got their answer? *waits for students to raise their hands. *students raise their hands. *call on a student randomly. *(student name) which problem would you like to share? *waits for student to give their response. *student responds with why they chose to share that specific problem and how they solved it. *great job! I love the way you chose to solve that problem. Would anyone like to share their reflection part of this activity? *waits for students to raise hands. *students raise hands. *call on a student randomly. *(student name) please share what you wrote. *student shares. *listen to what student wrote. *respond to what they wrote. I really enjoyed your reflection that was a cool way to explain what we did and what you learned. Does anyone have any final questions? *wait to see if students raise hands. *students may or may not raise their hands. *That is all I have for today’s lesson. Be sure your name is on your scavenger hunt paper and turn it in at my desk on your way out. Have a great rest of your day! *students turn in their work. *collect all the papers.

Materials/Resources:
Scavenger hunt worksheets
Scavenger hunt items throughout classroom

Connection to Prior Knowledge:
Students must recall key multiplication terms
Students will need to remember orders of operations to help them solve problems

Assessment:
Before: Oral questioning
During: Putting key terms on the board
After: Scavenger Hunt activity

Special Needs of Students:
Enrichment: Making the scavenger hunt items trickier to find and the number range higher.
Intervention: Making the scavenger hunt items easier to find and the number range lower.

(see attached for example scavenger hunt problems)

Reflection:

1.) This helps physical development because students will be up walking around searching for different objects and examining different objects. This affects them cognitively because they will need to find things that will fit into the problem they are trying to solve, they will have to think things through and process problems differently. This helps their language because it challenges them to look at a math problem and have to find something in the room that may not be a numerical number but rather an item. It affects their emotional development and interests because it is different than just a plain worksheet and will spark interest in learning something new in a fun way.
2.) Throughout the lesson the oral questioning will give me a gage on whether students are on the same page or are confused. The on the board activity will really let me know if they understand the terms because either they will be right or wrong. Lastly the scavenger hunt will let me know if my learning goals have been met because they will be turning it in and the reflection section on it will let me know what students may have struggled with or what they exeled with.
3.) The multiple intelligences are as follows: logic/math, kinesthetic, linguistic and intrapersonal. Logic/math because this is a math unit and students will need to think logically to solve problems. Kinesthetic because, students will be exploring the classroom searching for items. Linguistic and intrapersonal because students will need to express themselves in the reflection part of the activity along throughout the scavenger hunt worksheet.
4.) The learning styles are visual, verbal, and physical.
5.) I will able to tell whether students understand or not on whether their math work on their scavenger hunt worksheet is correct. I also added the reflection section specifically to understand what they are thinking and how their brains worked throughout this lesson and activity.

Scavenger hunt worksheet examples:
Enrichment:

1.) How many pens are on Ms. Dean's desk? what would the number be if you tripled it?

2.) Find the toy cinnapeed (it likes to hang out by dark corners), once you found the it count all of its legs. Then find a classmate and ask their age. Once you find their age figure out the product between the cinnapeeds legs and your friends age.

3.) How many flowers are there in the windowsill? How many pedals are on each flower? When the flowers and pedals are added all together what would that number be?

4.) How many things in Ms. Dean’s classroom are pink? Times that number by the number of things that are the same color as your eyes.

5.) Reflection: Please answer the following questions: what was your favorite part of this activity? What was your least favorite part? Was it easier or harder than you expected? What is something you learned?

Intervention:

1.) How many pens are on Ms. Dean's desk? Multiple that by the number of apples on Ms. Dean's desk.

2.) There are four magnets on the whiteboard. What else in the classroom is in a group of 4? Or can be doubled to equal 4?

3.) How many whiteboard markers can you find? How many whiteboard erasers are there? Can you find the product of those numbers?

4.) Can you find something that you can eat that is the color yellow? How many are there? Triple that number.

5.) Reflection: Please answer the following questions: what was your favorite part of this activity? What was your least favorite part? Was it easier or harder than you expected? What is something you learned?

Lesson Plan 4

Learning Goals/Objectives:

Students will Generate and Analyze problems in order to create a skyscraper/pyramid out of graphing paper.

Common Core Content Standards:

Operations and Algebraic Thinking (4.OA.C.5): Generate and analyze patterns
Reading: informational Text (RI.4.1): Key Ideas and Details

Methods:

[Key: teacher says → student's actions → actions of teacher]
*Stands in front of the classroom *Good Morning everyone! Today we have a super fun activity. I will not be doing as much of a lecture today to make sure you all have plenty of time to complete this activity in today's math session. Before we jump into today's activity. We have to review multiplication and division. Yesterday we went over all the keywords that were specific for multiplication. Today we are going to go ahead and review keywords for division just so have a nice refresher. Please pull out your foldables that we used yesterday. *waits for students to pull out foldables *students pull out foldables. *Now, just like yesterday you will have five minutes to review the keywords for division. *write division on the board. After your five minutes is up, as a class we are going to write the correct words under division. However, I will not be giving you all a word bank. So really study each of keywords. Your five minutes begins now. * as the student study write down all the keywords on a piece of paper for you to use to make sure they mention and get all of them correct. Write: separated, average, shared, divided by, share equally/equally and same amount.*students study/review for five minutes. *Once the five minutes is up, get the students attention. *Okay class, your five minutes is up. Please put your foldables back where you got them. *waits for students to put their foldables away. *students put foldables away. *to give you guys a little hint, you need to identify all six division keywords. *write the number 6 up on the board. * would anyone like to volunteer to go first? *wait for students response. *students may or may not volunteer. *(student name) come on up and give us our first word. *student comes up and writes first word. *either call on students randomly or have volunteers come up and write words until all six division key words are up on the board. * once all the words are up on the board address the results with the students. *be sure to encourage students because they do not have a word bank and have to recall it from their memory. *you guys did so well! Do you guys think you understand both multiplication and

division? *wait for students response. *students respond. *As I mentioned before, today's activity is the main part of today's lesson. We had to review division because we went over multiplication yesterday. In order to do today's activity you have to confident with both multiplication and division. Does anyone have any final questions before we move onto the activity? *waits to see if students have any questions. *students may or may not have questions. *For this activity I will partner you all off in groups of two. *group students off until everyone has a partner. Keep intervention students together and enrichment students together. * does everyone have a partner? *waits for students response. *students may or may not respond. * you and your partner will be working together in creating a skyscraper! You will be given a set of multiplication and division word problems. What you will do is solve the problem and that will tell you how many boxes you need to cut out. You will be given some graphing paper for the boxes. For example: *write on the board "If I have four apples and I want to triple that number, what would the result be?" If I have four apples and I want to triple that number, what would the result be? First, I know I have four apples *Circle four *and I know that triple *circle triple really is three. *write on the board 4x3=? *so if this question is really asking what 4x3 is, what would the answer be? *see if students respond. *students may or may not respond. *write 4x3=12 on the board. *The answer would be 12. So you would take your graphing paper and cut out a square that has 12 boxes in them. You will repeat this until you have answered all of your problems. Once all the problems are answered, you will then tape the squares from largest to smallest, creating your skyscraper. After you create this skyscraper you and your partner can come to me and ask me to check your work, and if it is done correctly I will give you some markers so you and your partner can decorate it however you would like. I know this sounds kind of confusing, does anyone have any questions before we get started? *waits for students response. *students may or may not have any questions. * I will be walking around throughout this activity to help you when you need it. Once I hand you and your partner your scissors, graphing paper and set of problems, you and your partner may begin to work. *walk around the class and hand out the scissors, graphing paper, and set of math problems for students to do. * You will have the rest of the class period to work on this activity. *students begin to work on this activity. *teacher walks around room throughout the whole activity asking questions to see what the students are doing, if they have a strategy, and how they know the answer they got is correct. *once there is about five to ten minutes left in the class have students go ahead and clean up. *Wow, you all did such great jobs on these! They all look so good. There is about five to ten minutes left so I need you all to go ahead and start cleaning up. Put the markers back in the bin on my desk, bring the scissors up and place them in the scissor bin on my desk, bring the extra graph paper up to my desk too. Throw all your extra trash away. Make sure you and your partners name is on your skyscraper and your math problem sheet. Leave

your math sheet and skyscraper on whichever desk you were working on and I will come by and pick them up. *Goes around to collect students work off their desks. *Clean up and put things back where they belong according to the teachers directions. *once the students clean up and you have collected all of their work, have students return to their seats before dismissal. *Please return back to your seats. *students return to their seats. * I am so proud of the work you all have done. You all have done so well with multiplication and division. I will hang your skyscrapers up so tomorrow you all will be able to see everyone elses works along with yours. *That is all I have planned today for you all. Have a great rest of your day! *stand by door as students leave. *students dismiss.

Materials/Resources:
Graph paper
Markers
Scissors
Tape
Math problem sheet

Connection to Prior Knowledge:
Students must recall key multiplication and division terms
Students will need to remember orders of operations to help them solve problems
Students will need to remember how to turn word problems into numerical problems

Assessment:
Before: Oral questioning
During: Putting key terms on the board
After: Skyscraper activity/problem worksheet

Special Needs of Students:
Enrichment: Making word problems harder and the numbers higher
Intervention: Making word problems easier and the numbers lower
(see attached for example skyscraper problems)

Reflection:
1.) This will help students physically because they will be using their hands to cut out boxes of graphing paper. This helps them cognitively because they will need to analyze word problems and turn them into numerical problems in order to figure out the number of squares need to be in each box. With language they will have to recall on key terms they have been learning the whole week. Socially

students will need to work together with a partner in order to complete this activity. This is appropriate because it ties in thing from previous lessons and they actually get to create something through math which is really interesting and different for an assessment.

2.) With this evaluation I can determine what the students know on whether or not their skyscraper is the way it should look, and if the math/order of operations is correct on their worksheet. This goes along with the oral questioning before and during that will let me have a glimpse of what is going through the students minds as they are working.

3.) The multiple intelligences in this lesson include: Linguistic, because students will have to understand key terms. Bodily-kinesthetic, students will be using their hands in order to cut out what is needed. Interpersonal, because students will need to be considerate with their partner and work together. It is even kind of spatial because students are creating something almost 3-D out of math problems. And it is logical because it is a math unit.

4.) The learning styles are visual, physical, social and logical.

5.) I will know if the students learn what I have intended based on the final product of their skyscraper and whether the math they have worked out on their worksheet matches their skyscraper and is correct.

Skyscraper Problems:

Enrichment:

1.) If there are forty apples on the tree, how many would be left if you divided by two?

2.) I have five apples but I need that number doubled.

3.) What number can be multiplied into twenty, and also 35?

4.) If there were eight monkeys, how many would there be if they were separated evenly?

5.) If there were 18 fish in the fish tank, how many would be left if you divide that number by six?

6.) Four divided by what equals two?

Intervention:

1.) If I have four apples and I want to triple that number, what would the result be?

2.) Two times three is the same as twelve divided by two. What is that number?

3.) What does eight divided by two equal?

4.) If four times three equals 12, then 12 divided by four must equal?

5.) If I have four apples and share two of them, how many would I have left?

6.) What times what equals one?

Lesson Plan #5

Learning Goals/Objectives:

Gain familiarity with factors and multiples.
Students will be able to multiply and divide word problems.

Common Core Content Standards:

Operations and Algebraic Thinking (4.OA.A.2): Use the four operations with whole numbers to solve problems.
Research to Build and Present Knowledge (W.4.9): Draw evidence from literary or informational texts to support analysis, reflection, and research.
Operations and Algebraic Thinking (4.OA.C.5): Generate and analyze patterns

Methods:

[Key: teacher says → student's actions → actions of teacher]
*teacher stands in doorway as students walk in. *begin to form a line outside of the classroom against the hallway wall in order to enter the classroom *Holds up flashcards with problems students have to answer before they can enter the classroom. *Good morning (student name) in order to enter class today you have to solve this multiplication or division problem. If you get it wrong you will go to the back of line until you get a correct answer. *holds up flash card and waits for students answer. *student solves math problem. *repeat this until every student gets one flashcard correct. *students go one at a time attempting to solve the math problem. *once all of the students get a question right, enter the classroom and address the class. *Hello everyone! So that was a different way to start today's class off. You all did so well being put on the spot answering those problems! Good job! We are going to do a couple of different things today. We are going to have a math test today. That will be our wrap up to this math unit. But before we do that, do you all remember on Tuesday when we did our around the world multiplication game? *wait for students response. *students respond. * I knew you guys would remember because that was a pretty fun way to explore multiplication. Well, today we are going to play that same game. But, instead of just multiplication problems we are also going to do division problems too. How does that sound? *wait for students response. *students respond. * before we start we are going to go over the rules of the game just in case any of you forgot. Let me explain how this game is going to work. Each of you individually will go head-to-head against your classmates in a game of multiplication and division flash cards. Two students will go at a time, you each will have a small whiteboard and dry erase markers to write your answers down. I will flip a flash card with a problem on it like 2x2 or 6÷2, the first person

to answer that problem will win that attempt and go up against another student until they get one wrong or not as quickly as their opponent. The student who gets the most answers right and beats the most people will become the around the world champion for today. Any questions before we get started? *wait to see if any students have any questions. *write the names of each student in the class up on the board to keep tali marks of how many times each person wins. *pick the first two students randomly to start the game off. *Have them come up to the front of the classroom. * first two students make their way to the front of the classroom. We will be playing this game for 15-20 minutes so it is very important that everyone stays focused and tries their best at these problems. Grab the set of flashcards, and the first students each a small whiteboard and markers. *(student 1), (student 2). Ready? Get set. Go! *flip the first flash card over. Encourage the other students not playing at that moment to cheer their classmates on. *students are either going head-to-head or watching. *continue this game for 15-20 minutes. *when time is up have the students return to their seats. *okay times up! Great job everyone! Please go sit back down in your seats. *students return to their seats. *announce the over all winner *Let's add up everyone's score to see who won. *add up each students score and then say who the winner is. * looks like (student name) is our over all winner! Good job (student name). Everyone else did really well too. I am proud of all of you. I need everyone to return to their seats and clear their desks. For the remainder of this class period you all will do your test. *Go around and hand out each test to the students row by row. *Once you are finished with you test please come give it to me then return to your seat and sit quietly until class is dismissed. *waits for students to finish testing. *students take the test. *once class time is up address the class. *I am proud of each and everyone of you. You all did so well throughout this math unit you should be proud of everything you learned. That is all we have for today. Have a great weekend and I will see you on monday!

Materials/Resources:

Pre-made flash cards
Test
White boards
Dry erase markers

Connection to Prior Knowledge:

Students will have to recall what they have learned in previous lessons in order to complete the flashcards to enter class and in the around the world game.

Assessment:

Before: Entrance flashcards

During: Around the World
After: Test

Special Needs of Students:
Enrichment: Being put on the spot with harder entrance flashcard problems
Intervention: Being put on the spot with easier entrance flashcard problems

Reflection:

1.) This will help their physical development even though they will only kind of be moving around during the game, they will still get blood flowing and use their bodies in a physical way. Their social and emotional development will improve because we have already done the around the world game before, it will build their confidence and they will be more comfortable interacting with their peers. This lesson will benefit the students because there are doing a few different things throughout this class period. There will a couple changes of pace which will keep them interested and focused. It is also a fun and different way to assess their knowledge.

Assessment Test:

Enrichment:

1.) 51 _, _, _, _

1, 3, 17, 51

2.) 25 _, _, _, _

1, 5, 25

3.) 62 _, _, _, _

1, 2, 31, 62

4.) 98 _, _, _, _, _, _

1, 2, 7, 14, 49, 98

5) 86 _, _, _, _,

1, 2, 43, 86

6.) I have five apples but I need that number doubled.

7.) What number can be multiplied into twenty, and also 35?

8.) If there were eight monkeys, how many would there be if they were separated evenly?

9.) If there were 18 fish in the fish tank, how many would be left if you divide that number by six?

10.) 56x30

1680

11.) 36÷6

6

12.) 80÷4

20

Intervention:

1.) 36 _, _, _, _,

1, 3, 11, 33

2.) 42 _, _, _, _, _, _, _, _

1, 3, 6, 7, 14, 21, 42

3.) 3 _, _

1, 3

4.) 9 _, _, _

1, 3, 9

5.) 28 _, _, _, _, _, _

1, 2, 4, 7, 14, 28

6.) Two times three is the same as twelve divided by two. What is that number?

7.) What does eight divided by two equal?

8.) If four times three equals 12, then 12 divided by four must equal?

9.) If I have four apples and share two of them, how many would I have left?

10.) 40x2

80

11.) 100 ÷ 10

10

12.) 12÷4

3