Teacher Work Sample

Submitted By

Ashley Hagan

800-45-0623

April 4, 2008

Subject: Math (Division)

Grade Level: 4

Western Kentucky University

EDU 489-009

Student Teaching Seminar

I certify that this document is a result of my own experience and authorship.

Ashley Hagan

I certify that the data utilized in this Teacher Work Sample was collected in my classroom or under my supervision.

Dawn Young

Table of Contents

Contextual Factors

District/Community/School Factors: [redacted] Elementary School is located in [redacted] County, Kentucky, in a small, rural community. The majority of this population is Caucasian and is middle class. The school contains 260 students who range from preschool through fifth grade. Because the community is small, the enrollment of the school stays constant. There are a variety of learning resources within the school that contribute to student learning, including a library, computer labs, music/drama, and gym.

Classroom Factors: The physical features of this fourth grade classroom encourage student achievement because they are inviting and include a variety of student work displayed on the walls! The students are not grouped in a specific manner to accommodate for their learning styles or behaviors. There is average parental involvement in this classroom. Technological resources that are available in the classroom include a document camera, television, CD player and four computers. This classroom environment will help support my instructional strategy to teach mathematics because I will utilize the resources and available teaching tools in order to reach individual learning styles and increase student understanding of the concepts!

Student Characteristics, Background Knowledge and Prior Skills: There are twenty students ranging from nine to ten years old in this class. The majority of the class prefers learning visually, so I will include a variety of visual aids and hands-on learning techniques in the lessons. [See Appendix A for learning styles table]. The students also prefer learning hands-on with games and activities. They have previous knowledge and skills in solving addition and subtraction problems and are currently practicing two-digit multiplication, which are all included in the process of long division. There are no

students in the class with Individual Education Programs and there are no English Language Learners or students with disabilities. There are five students in the class that are above grade level in this area. The other students are on grade level. [See Appendix A for achievement levels chart.]

Instructional Implications: To meet the needs of the students that are above grade level, I will incorporate a variety of activities that will challenge them and move at a faster pace with them if needed. To enhance the lesson for all of the students, I will incorporate visual aids and concrete examples that relate to real life to ensure that they understand the significance of the concept. I will give them the opportunity to solve mathematical problems using manipulatives because many of them are visual learners. I will provide extra support for students by allowing them to work together, use resources and work through examples with them. Based on these contextual factors, I will make sure that the lessons are engaging for students so they may construct their own meanings and I will explain the concept in more than one way so each student understands!

Learning Goals

Learning Goal 1 (LG 1): The student will analyze (Analyzing) relationships and appropriate representations to solve various mathematical operations using appropriate vocabulary.

LG 1 encompasses Core Content Standard MA-04-1.3.1 (divide whole numbers with three digits or less by single-digit divisors) and Program of Studies Standard MA-4-NPO-U-2 (understand relationships among operations to solve real world problems). LG 1 fits these standards because the students will work with manipulatives to see how

multiplication and division relate to one another, learn their processes to build on this and learn why they are important to learn in real life.

Learning Goal 2 (LG 2): The student will create (Applying) multiple representations of various mathematical operations to solve real world problems.

LG 2 aligns with the Core Content Standard Ma-04-1.3.1 (apply operations to solve real world problems) and Program of Studies standard MA-4-NPO-U-2 (understands relationships among operations to solve real world problems). LG 2 reflects these standards because the students are expected to understand the inverse relationship between multiplication and division to create representations of each. The students will work with manipulatives to see how the process of division involves grouping.

Learning Goal 3 (LG 3): The student will analyze (Analyzing) real world problems and solve (Applying) using the appropriate operation.

LG 3 aligns with the Core Content Standard MA-04-1.3.1 (apply operations to solve real world problems) and Program of Studies standard MA-4-NPO-U-2 (understands relationships among operations to solve real world problems). LG 3 reflects these standards because the students will solve division word problems by identifying the appropriate equation and solving using the process of long division.

Assessment Plan

Overview:

Learning Goals	Assessment	Format of Assessment	Adaptations
LG 1 The students will evaluate relationships and appropriate	Pre-Assessment: #1-2, 6-7, 9-12	Paper and pencil, selected response and constructed response questions	Read aloud questions/directions to all students.
representations to solve various mathematical	Formative Assessment	Word wall online activity checklist; questioning and	Read aloud questions/directions to all students.

operations.		observation; practice solving long division; Division Grouping handout; Division BINGO game; Long Division worksheet; Remainders base-ten activity	Students work with partners on word wall and with base-ten blocks. Provide division challenge worksheet for gifted students and more challenging division BINGO problems. Show and verbally explain process of division. Review and reinforce throughout unit.
	Post-Assessment: #1-2, 6-7, 9-12	Paper and pencil, selected response and constructed response questions	See adaptations for pre-assessment.
LG 2 The student will create multiple representations of various mathematical operations to real world problems.	Pre-Assessment: #8, 14-15	Paper and pencil, performance based with use of manipulatives	Read aloud questions/directions to all students. Review rubrics for open response questions. Allow students to show knowledge with base-ten blocks and illustrations.
	Formative Assessment	Questioning/ observation; Practice solving word problems with blocks; Division word problems worksheet; Remainders base-ten activity; Division centers group activity	Read aloud questions/directions. Allow use of base-ten blocks to solve. Students may show knowledge through illustrations. Allow students to work in small groups on worksheets. Provide tic-tac-toe handout for gifted students. Show and verbally explain grouping. Review/reinforce

			throughout unit.
	Post-Assessment: #8, 14-15	Paper/pencil, performance based with manipulatives	See adaptations for pre-assessment.
LG 3 The student will analyze real world problems and solve using the appropriate operation.	Pre-Assessment: #3-5, 13-14	Paper and pencil, selected response and performance questions with use of manipulatives	Read aloud questions/directions to all students. Allow use of base-ten blocks to solve problems. Students may show knowledge through illustrations. Review rubrics for open responses as a class.
	Formative Assessment	Questioning and observation; Division word problems worksheet; Online division solving activity; POD problems; Division centers group activity	Read aloud questions/directions to all students. Incorporate online activity to increase student interests. Allow use of base-ten blocks and illustrations to solve problems. Allow students to work in small groups during centers. Provide concrete models for demonstrations. Show examples of what is expected for each activity.
	Post-Assessment: #3-5, 13-14	Paper and pencil, selected response and performance questions with use of manipulatives	See adaptations for pre-assessment.

[See Appendix B for the pre and post-assessment, scoring key and related rubric.]

My pre-assessment and post-assessment are exactly the same. The tests are each paper-pencil based and consist of selected response, constructed response and

performance questions. The mastery criteria for the entire assessment is 12 out of 15 points (80%). The mastery criteria for LG 1 is 5 out of 6 constructed response questions and both of the selected responses (7/8 or 88%); the mastery criteria for LG 2 is to correctly answer the constructed response question and performance question (2/2 or 100%); the mastery criteria for LG 3 is 2 out of 3 selected responses and one of the performance questions (3/5 or 60%). On the pre and post-assessments, number 14 is related to both LG 2 and LG 3; however, in the mastery percentage totals, it is only counted once. The mastery criteria for the performance questions are each set at level three on the scoring guides, in which the student received 1 point for levels 3 or 4 and no points for levels 1 and 2. The selected and constructed responses are evaluated using a key and each performance question has a related rubric.

Questions number 1, 2, 6, 7 and 9-12 align with LG 1 because they ask the students to analyze the given mathematical operations (i.e., find the next step in the process) in order to solve. Questions number 8 and 14-15 align with LG 2 because they ask the students to create representations of operations and solve them (i.e., illustrate how you solved the given division problem). These are higher-level thinking because the students was apply what they have learned in order to solve using manipulatives, create illustrations and give explanations that connect to real world situations. Question numbers 3-5 and 13-14 align with LG 3 because they involve analyzing division problems that connect to the real world to solve (i.e., word problems).

My formative assessment includes questioning and observation during each lesson review and closure. Each lesson will begin with a whole group review of previous concepts and introduction to new ones, which will help me assess student knowledge of

these concepts. At the end of many lessons, the students will complete practice activities (independently and with partners) to review the concepts from that lesson, which also helps me assess whom is ready to build on that concept and move forward. In some of the lessons, I will also assess the students with checklists (division centers, division BINGO game, word wall activity). This form of assessment will help me see how the students are progressing throughout the lesson and check for understanding before final assessments.

Design for Instruction

[See Appendix C for Pretest Data Table.]

The average score on the pre-assessment was 41%. From these results, I conclude that the learning goals will stay the same because the students have not mastered them yet. The students should master these goals within the two-week span of the unit. Because the students did not favor one particular goal on the pre-assessment, I will spend most of the time on LG 1 because it is the basis for LG 2 and LG 3 and the students may have more difficulty with this learning goal because it contains more complex terminology and procedural questioning. Also, there are five GSSP students in the class. Although these students still did not master the unit goals, I will need to create lessons and assessments that are challenging for them while also ensuring that the whole class is engaged in learning. I can encourage the GSSP students to contribute to whole group discussion by focusing on their prior knowledge of multiplication and the relationship between operations. This should better prepare the students to learn division.

Overview: See references for activity source information.

Date	Lesson Title	Instructional Strategy/Activity	Learning Outcome(s) Addressed	Assessment(s) Related to Outcome(s)
Day 1	Division Vocabulary	*Recall prior knowledge of math vocabulary	Learning Goal 1	Word wall representation Students will work with partners to create word

		*Introduce unit terms *Online word wall activity *Create word wall representations using website		wall including the word, definition, an illustration, symbol(s) and examples. Show examples of what is expected for word wall and how to use website. Review terms throughout unit.
Day 2	Dividing Whole Numbers with base-ten blocks	*Group discussion (money examples of division) *Multiplication and division as inverses (problems on board) *Grouping partner activity (with base-ten blocks) *Division Grouping worksheet	Learning Goal 1	Division Grouping worksheet Students will work independently to solve division sentences by grouping together base-ten blocks and explain the relationship between multiplication and division. Review use of base-ten blocks. Show examples of what is expected for solving problems. Review throughout unit.
Day 3	Division Word Problems	*Example problems of division with money *Group discussion-division in real life *Solving word problems with base-ten blocks *Division Word Problems worksheet	Learning Goals 2 & 3	Division Word Problems worksheet Students will use base-ten blocks to solve division word problems. Show examples of what is expected on document camera. Review these problems and examples throughout the unit.
Day 4	Long Division (2-digit dividends)	*Introduction of long division with visual (long division procedure poster) *Review of long division examples on board *Solve of long division problems by grouping base-ten blocks *Whole group division BINGO game	Learning Goal 1	Division BINGO game Each student receives a BINGO card (with division problems and squares with solutions) and must find the solutions using long division. Review how to play BINGO and show examples of what is expected for activity. GSSP students receive more challenging

				problems with higher numbers.
Day 5	Long Division (3-digit dividends)	*Whole group discussion of strategies to solve division problems *Review of long division with visual (poster) containing 3-digit dividends *Students solve problems in small groups using base-ten blocks * Long Division worksheet	Learning Goal 1	Long Division worksheet Students work independently to complete the division worksheet using base-ten blocks. Show examples of what is expected on document camera with base-ten blocks. Review these problems and examples throughout the unit.
Day 6	Remainders	*Example problems of division with money (remainders) *Group discussion-division in real life with remainders *Solving division problems with remainders and appropriate representations *Remainders base-ten activity	Learning Goals 1& 2	Remainders base-ten activity (observation) Students will solve several division problems in small groups with base-ten blocks (with and without remainders). Each student will have a group role and must create division problems. They will share created problems with other groups to solve. Show examples of what is expected and observe using group checklist.
Day 7	Division in Real Life	*Review of long division problems with remainders (Problem of the Day) *Whole group discussion of when division is important in real life *Online activity	Learning Goal 3	Problem of the Day Students will solve five division problems (with and without remainders) for review. Online Activity Students will solve division sentences, long division problems with/without remainders and division word problems. Show students how to

				use site and what is expected for activity.
Day 8	Unit Review (centers)	*Review of unit terms, grouping, long division problems, word problems, importance in real life, and real life examples in whole group discussion. *Students complete 3 centers.	Learning Goals 1, 2, & 3	Checklist-Students will complete 3 centers in small groups to review for posttest. Student that finish early may work on division website from previous day. Provide clear directions, finished examples and expectations for each center and rotate every 10 minutes.

Activity One

One activity I am designing for my division unit is the Online Word Wall Activity. This will be effective because it is a hands-on activity in which students will work with partners to create a representation of vocabulary in the unit and it may be referred to for the rest of the unit! This concept is related to LG 1 because students must analyze terms and appropriate definitions so they will use the vocabulary to solve division problems. I need to focus on this concept and activity because no one mastered the concept on the pre-assessment. I decided to use the website as a student resource to create the word wall and increase interests in the concept. Also, this provides students with a visual aid that they can refer to while creating the word wall. I am going to explain how to use the website first and show the students my examples of each word that will be included on the word wall. The students will work with partners to use the web site and create a representation of the given word. I will assess by using a checklist to ensure that the students have worked together to create the representation including the given word, definition, an illustration, symbol(s) and an example of when it is used in division.

Activity Two

Another activity I am using for my division unit involves solving division word problems on a worksheet using base-ten blocks. Students will work independently and group base-ten blocks to solve division word problems. This is an effective strategy because it is a hands-on activity in which the students discover the concept through reading the problems aloud and grouping manipulatives. This concept is related to LG 2 and LG 3 because students are creating representations of the problems with the blocks and analyzing the word problems in order to solve by dividing. I will focus on this concept and activity because the concept was not mastered on the pre-assessment and it is especially important that the students know how they might use division in the real world. I will explain how to use the base-ten blocks and allow the students to work together to solve the problems. I will promote discussion about how each problem relates to real life situations and ask higher order thinking questions as the students complete the problems. I will assess the worksheet using a rubric that requires various representations of division. This includes solving each problem using the base-ten blocks, illustrating how the blocks were grouped to solve and explaining how the problem was solved.

Activity Three

A third activity that I am designing for my unit is a rotation of four centers that reviews each concept from the entire unit. Students will work together in small groups and will each have roles in completing the centers. This is a hands-on learning activity and review for the students before the post-assessment. This concept is related to LG 1, LG 2 and LG 3 because students will focus on the relationship between multiplication and division and how multiplication is used in long division to solve problems. They will also use manipulatives to create representations of division problems and analyze word

problems in small groups to solve. At the first center, the students must work individually to solve two multiplication problems, write the inverse equations and explain how they solved. At the second center, the students will work in small groups to create a division word problem using the number of slices of pizza and number of people, solve and use a ruler to cut the pieces and write division/multiplication problems from the numbers in the equation. At the third center, the students will work with partners to solve the division word problems using base-ten blocks, illustrate how they grouped the blocks to solve and record when they have used division in real life. When finished, the students work on the division website from the previous day. I will assess this activity with a checklist. The students will complete a checklist as well to ensure that they completed each part of the centers. [See Appendix D for student sample of completed activity checklist.]

Technology

Technology is used to plan this unit because I search the Internet for many resources on lesson plans and activities that may be used within the unit. I will use technology to provide instruction by presenting information and word problems on the document camera so that all students have a visual of the concept. I also plan to incorporate online activities into three of my lessons, which will be effective because it increases student interest in the concepts!

Instructional Decision-Making

The first instructional decision I made was during my third lesson. At the beginning of this lesson, I increased student interests by engaging them in a whole group discussion focusing on situations in which they may have used division. When few students had suggestions, I realized that this might not have been an effective question because the pre-assessment results showed that most students did not yet know how to

divide or when to use division. I decided to focus on why division is important in real life; however, the students still did not participate fully when I asked these questions. I finally decided to show the students that we could divide money among people. I displayed this concept by asking for volunteers and dividing into groups. The students immediately came up with more suggestions because my example had triggered their thoughts on when they had used division before in situations. Throughout the rest of the lesson, I engaged the students by encouraging them to work through word problems using base-ten blocks. Periodically, I included their suggestions on division in real life in discussion while solving these word problems. I also allowed them to create word problems based on real life situations and solve. At the end of the lesson, I asked the students how we could use division in real life and many students had answers. I realized that giving the students a specific example was effective because it helped them understand why division is important in real life!

Another instructional decision I made during this unit occurred within the fourth lesson. During this lesson, I used a visual aid to show the students the process of long division. I worked through many examples on the document camera and asked them what the next steps were in the procedure in order to informally assess whether or not they knew the process and why it was important. I had originally thought that this review (and the visual aid display) would be enough information for the students to be able to follow the process and solve these long division problems during guided practice. However, many students answered incorrectly when I asked questions about the procedure and why it was important to know. I observed that many students were becoming frustrated when they could not solve the problems; therefore, I decided to review each step of the process

individually, pinpointing why it was important and how it led into the next step of division. This brief review and discussion impacted student learning because the students made connections between the steps in the process to better understand how to solve the division problems.

Analysis of Student Learning

After completing my division unit post-assessment, I compared how the students performed on the pre and post-assessments. This information would affect decisions about future lessons and my next instructional steps. I observed how much the students learned and if they met mastery of the learning goals, which were: students will analyze relationships and appropriate representations to solve various mathematical operations using appropriate vocabulary (LG 1); students will create multiple representations of various mathematical operations to solve real world problems (LG 2) and students will analyze real world problems and solve using the appropriate operation (LG 3).

By looking at the learning goal results table and graphic representation [See Appendices E and F], I see that two students did not master LG 1 on the post-assessment and another student's score decreased from pre to post-assessment. On LG 2, six students' scores did not improve from pre to post-assessment. After instruction, all of the other students showed increases in comprehension of the concepts. The learning results graph indicates the results of each goal on the pre and post-assessments. The average score on the pre-assessment was 41% and the post-assessment average was 87%; therefore, the scores increased by 46%. LG 1 grew by 37%, LG 2 rose 35% and LG 3 grew by 48%. LG 3 grew the most and the students have a better understanding of this content. LG 1 and LG 2 showed the least improvement and were very close, with a

difference of only 2%; however, the content from LG 1 and LG 2 was necessary to understand in order to apply it to real world situations and master LG 3. LG 3 was the area with the most growth because the lessons were more hands-on and this concept relates to real life, which helps the students understand it better. I also feel that LG 3 was a more valid measure of student understanding because it was based on performance questions in which the students applied what they learned to real life situations. [See Appendix G for whole group results graph of pre and post-assessments.]

On the post-assessment, twelve out of twenty students met mastery criteria of 88% for LG 1, whereas only one student met mastery of this goal on the pre-assessment. Four of these students made a 100% and are above grade level. Twelve students met the mastery criteria of 100% for LG 2 on the post-assessment. No students met mastery of LG 2 on the pre-assessment. Nine of these twelve students also mastered LG 1 and this includes the five GSSP students. Nineteen students met the mastery criteria of 60% for LG 3. Only two students met mastery of this goal on the pre-assessment and one of these students is above grade level. [See Appendix E for learning goal results table.]

I chose to analyze LG 3 in terms of student grade levels in the classroom. Before beginning the unit, I found that five students in the class are above grade level and fifteen students are on grade level. This is an important contextual factor because the five students above grade level need to be challenged to their ability levels. Therefore, I decided to monitor the progress from pre-assessment to post-assessment according to the students' levels because I wanted to see how these differences affected individual student learning and compare how the students grew after learning the concepts. I decided to compare using LG 3 because it was the most improved area overall. I created a graph

displaying the pre and post-test results of the different levels for LG 3. According to the data, the average score on LG 3 for the students on grade level went from 7% to 93%, increasing by 86%. The average for the students above grade level went from 20% to 100%, growing by 80%. The students on grade level had a lower percentage on the pretest for LG 3 (7%) than the students above grade level (80%). However, the students on grade level also showed a higher increase from pre to post-assessment. [See Appendix H for comparison in graphic representation.]

For my individual comparison, I selected Cody and Kelsey for many reasons. Cody is one of the five students above grade level and Kelsey is on grade level. There is also a difference in gender. Cody improved on all three learning goals and Kelsey's score actually went down on LG 1. These students also showed differences in range of scores from pre to post-assessment. Cody went from 47% (7/15) to 100% (15/15), growing by 57% and showing the most growth of all of the students above grade level. Kelsey's scores went from 53% (8/15) to 60% (9/15), increasing by 7% and showing the least growth in the class. Although Cody scored lower on the pre-assessment than Kelsey, his scores increased greatly from pre to post-test, while Kelsey only correctly answered one more question than she did on the pre-assessment.

During many of the lessons, I observed that Kelsey reached a certain level of frustration and found it difficult to focus on the concepts being taught. She was apprehensive to answer the questions asked of her during class and seemed to lack the confidence that students, such as Cody, had. Therefore, she required more help to complete activities. I also observed that Cody found the concepts easier to understand and paid close attention during class. He had confidence in his answers and was eager to

answer the questions during class. He completed all of his activities successfully independently; however, he was one of the students that would have become bored after finishing his work early had he not been given a challenge worksheet for his ability level.

It is important to understand the learning of these two students because their learning results were so different, yet they received mostly the same instruction. This information will help me understand how to meet both of these students' needs in the future and see what instructional strategies did and did not work with the different ability levels in the classroom. Overall, Cody showed more growth than Kelsey throughout the unit. This was not what I originally predicted because I thought that, since Cody is a gifted student, he would obtain better grades at the beginning of the unit. However, he began like the average students in the class and then showed vast growth. Kelsey may have had less previous knowledge than students like Cody and this could have caused frustration during the lessons, so she did not grow as immensely as the other students. I will need to further reflect on reasons why Kelsey made the least progress to find out how I can adapt lessons to decrease frustration and encourage success in similar students. [See Appendix I for an example of Cody's work, Appendix J for Kelsey's example work, and Appendix E for student-highlighted results in table format.]

Reflection and Self-Evaluation

On the post-assessment, LG 1 was the goal on which my students showed the most success. This proved my original hypothesis wrong because I thought that the students might have more difficulty with this learning goal because it contained more complex terminology and procedural questioning. However, because this was my prediction, I spent more lessons on LG 1, which may have caused the students to be

successful. According to the contextual factors, hands-on activities are most appropriate for students during instruction and LG 1 included activities that met student interests. These activities related to the learning styles of students and also could have impacted their success on LG 3. Another reason is that students need to know the concepts in LG 1 in order to connect them to LG 2 and LG 3. In terms of assessment, more questions aligned with LG 1 because there were more lessons that related to this learning goal.

The learning goal where my students showed the least success and the least growth was LG 2. Students may have had more difficulty with this learning goal because applying concepts from LG 1 to create and solve real world problems is a more difficult concept. Throughout the lessons related to LG 2, I asked questions relating to why division is important to know in the real world and when to use this skill. Originally, I predicted that the students would grasp this concept better because it relates to real life experiences; however, I noticed that many students were not confident in their answers. This may have been because they did not have as much experience with division in the real world than I originally predicted. In the future, I will be sure to be more aware of what the students' prior knowledge and misconceptions may be for each individual learning goal, rather than for the unit as a whole.

Another reason my students showed less success with LG 2 could be because it was always related to another learning goal within lessons. There are no lessons within the unit planned for LG 2 alone because I corresponded it with the other learning goals. This may have been confusing for the students; therefore, in the future, I will devote one or more lessons only related to LG 2 so the students may grasp the concept of grouping in division before moving on and relating this concept to real life problems. I will also

provide more reviews of the topics related to this learning goal so the students may come to understand it better in the future. [See Appendix F for learning goal results graph.]

Throughout planning and instruction for my unit, I have established many goals for myself as an educator. The first area that I feel I could improve on is differentiating instruction to meet individual student needs. Although I did adapt the assessments to meet the needs of the different levels within the classroom, I feel that I could still improve in differentiating instruction for students. This is one of the most important teaching techniques used in the classroom and I feel that it is an area in which I am improving, but still need to grow. In order to continue growing in this area, I can attend professional development meetings and seminars focused on differentiation techniques that will help me learn even more strategies to differentiate at various levels. In addition, I have also observed other teachers' differentiation strategies (i.e., classroom seating arrangements, grouping strategies and assessments) at the school where I am completing my student teaching. I have already learned some new strategies to use with students at different ability levels and I feel that I will learn a great deal from those who have experience in this area.

The second learning goal that I made for myself is that I need to learn more techniques for teaching processes to students. Often at times, a procedure is memorized and is only developed as a concept needed to build on to learn other concepts. I feel that, to a certain extent, this is how I taught the process of long division during my unit. At the beginning of the unit, it seemed to be the only way to teach the steps in this procedure. However, I feel that I should have presented it to the students in a different way, rather than teaching it as a procedure to remember for another concept (i.e., solving division in

real life). I could have showed the students the relationship between dividing with a calculator and using long division so they would not only know, but also experience how the process works and why it is important to know. To improve my teaching abilities in this area, I plan on discussing this with the Math Recovery teacher in the school where I am student teaching and learning new strategies for mathematics lessons because a great deal of math is procedural. I also want to observe other teachers during math at various grade levels to see how they engage their students and keep them interested. I will also try various strategies with students to see which ones are successful so I will learn through experience and find my own strategies in the classroom!

Teacher Work Sample References

1.) Douglas, Vincent. (2004). *Total Math*. New York: American Education Publishing.

2.) MacMillan and McGraw-Hill. (2002). *Divide 3-Digit Numbers*. New York: McGraw-Hill Companies. Wood, Chip. (1994). *Yardsticks*. Greenfield: Foundation for Children Inc.

3.) Division Bingo. (n.d.). Retrieved January 26, 2008, from Division Web site: http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/maths/bingo/index.html

4.) Harcourt Multimedia Math Glossary. (2008). Retrieved January 26, 2008, from Harcourt Web site: http://www.harcourtschool.com/glossary/math_advantage/glossary4.html

5.) Kids math word problems. (2007). Retrieved Sept. 28, 2007, from Syvum Web site: http://www.syvum.com/math/wordproblems/level1.html

APPENDIX A
Student Learning Styles Table

(The following table displays each student's learning style results from a learning style inventory given during class. The students with an * are the five GSSP students in the class).

Learning Styles	Linguistic	Logical/ Mathematical	Visual/ Spatial	Bodily/ Kinesthetic	Interpersonal	Intrapersonal
Student Names		*Brianna	Tessa Emily Ashley *Cody Devin Katie Hallie *Hunter *Lexi Juan *Matt Lily Ashlyn	John M. Kelsey	Marissa Shelby	Jenny Taylor R.
Total	0	1	13	2	2	2

APPENDIX B
Pre and Post-assessment

Date: _____ **Name:** _____

SECTION A Directions: Circle the letter that BEST fits the answer.

*Name the RED number in each of the following equations. (#1-2)

1.) $3\overline{)621}$

a.) divisor
b.) quotient
c.) dividend
d.) none of the above

2.)
$$\begin{array}{r} 473 \\ 2\overline{)947} \\ -8 \\ \hline 14 \\ -14 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$$

a.) remainder
b.) quotient
c.) dividend
d.) none of the above

*Find the next step in each of the following equations. (#3-5)

3.)
$$\begin{array}{r} 2 \\ 4\overline{)93} \\ -8 \end{array}$$

a.) subtract
b.) multiply
c.) bring down
d.) none of the above

4.) $5\overline{)642}$

a.) bring down
b.) multiply
c.) divide
d.) none of the above

5.)
$$\begin{array}{r} 8 \\ 6\overline{)48} \end{array}$$

a.) divide

b.) multiply
c.) subtract
d.) none of the above

*Fill in the blanks with the BEST answer. (#6-8)

6.) The inverse operation of division is _____.

7.) The third step in the process of division is _____.

8.) Make the following sentence true by filling in the blank with the appropriate numbers. You may use the space provided to work out an equation and make sure it fits!

If _____is the dividend and _____ is the divisor, then the quotient is _____, and the remainder is _____.

SECTION B Directions: Solve the following problems and write the answer on the line provided (include remainders if there are any). Show your work! (#9-12)

9.) $4\overline{)12}$ = _____

11.) $6\overline{)26}$ = _____

10.) $3\overline{)16}$ = _____

12.) $2\overline{)48}$ = _____

SECTION C Directions: Read the following problems and answer in the given space. Be creative! (#13-15)

13.) Kelly, Matt and Andrew each came to school with 6 pencils.

A.) Create an equation below to show the total number of pencils the students brought to school. (You may use the given blocks to help you).

_____

B.) If they divided the total number of pencils by 3, how many pencils would each child have? If they divided the total number of pencils by 6, how many pencils would each child have?

_____ _____

C.) Explain how you got your answers in parts **A** and **B**. Show your work below.

14.) Your class is taking a trip to Holiday World. 17 children are going on the trip and only 3 children can ride in each car.

A.) How many cars are needed on the trip? Use the given blocks to help you solve.

B.) Illustrate a picture below of the division problem you solved in part **A**.

C.) Describe how you used the base-ten blocks to help you solve the problem.

15.) A.) List the 5 steps in the division process below.

a.) _____

b.) _____

c.) _____

d.) _____

e.) _____

B.) Explain, in your own words, why it is important to know these steps.

C.) Describe how you can use division in real life situations in at least two sentences.

Pre and Post-Assessment Answer Key

1.) c. dividend
2.) b. quotient
3.) a. subtract
4.) c. divide
5.) b. multiply
6.) multiplication
7.) subtract
8.) sample answers: 14, 3, 4, 2
9.) 3
10.) 5 R1
11.) 4 R2
12.) 28
13.) rubric
14.) rubric
15.) rubric

Scoring Rubric
Question 13

*Levels 4 and 3 meet mastery and are worth one point each. Levels 2 and 1 do not meet mastery and are not worth any points.

4	All parts correct and clear! The student creates a multiplication equation to show the total number of pencils (3 X 6 = 18 or 6 X 3 = 18). The student correctly divides the total number of pencils by 3 (18 3 = 6) and by 6 (18 6 = 3) to find how many pencils each child would have. The student demonstrates a deep understanding of the process of division by clearly explaining how he/she computed the answers in parts A and B of the question and showing work.
3	Few mistakes! The student correctly completes two of the following criteria: Creates a multiplication equation to show the total number of pencils (3 X 6 = 18 or 6 X 3 = 18), divides the total number of pencils by 3 (18 3 = 6) and by 6 (18 6 = 3) to find how many pencils each child would have and clearly explains how he/she computed the answers in parts A and B of the question.
2	Some parts correct/concept unclear. The student correctly completes one of the following criteria: Creates a multiplication equation to show the total number of pencils (3 X 6 = 18 or 6 X 3 = 18), divides the total number of pencils by 3 (18 3 = 6) and by 6 (18 6 = 3) to find how many pencils each child would have and clearly explains how he/she computed the answers in parts A and B of the question.
1	Very little correct/lack of understanding. The student does not create a multiplication equation to show the total number of pencils (3 X 6 = 18 or 6 X 3 = 18). The student does not correctly divide the total number of pencils by 3 (18 3 = 6) and by 6 (18 6 = 3) to find how many pencils each child would have. The student does not clearly explain how he/she computed the answers in parts A and B of the question.

Scoring Rubric
Question 14

*Levels 4 and 3 meet mastery and are worth one point each. Levels 2 and 1 do not meet mastery and are not worth any points.

4	All parts correct and clear! The student correctly computes the total number of cars needed on the trip (6 cars). The student demonstrates a deep understanding of the process of division by creating an illustration of the division problem (17 3 = 5 R2). The student clearly describes how he/she used the base-ten blocks to answer parts A and B of the question.
3	Few mistakes! The student correctly completes two of the following three criteria: Computes the total number of cars needed on the trip (6 cars), demonstrates an understanding of the process of division by creating an illustration of the division problem (17 3 = 5 R2 and describes how he/she used the base-ten blocks to answer parts A and B of the question.
2	Some parts correct/concept unclear. The student correctly completes one of the three following criteria: Computes the total number of cars needed on the trip (6 cars), demonstrates an understanding of the process of division by creating an illustration of the division problem (17 3 = 5 R2 and describes how he/she used the base-ten blocks to answer parts A and B of the question.
1	Very little correct/lack of understanding. The student does not correctly compute the total number of cars needed on the trip (6 cars). The student does not create an illustration of the division problem (17 3 = 5 R2). The student does not clearly describe how he/she used the base-ten blocks to answer parts A and B of the question.

Scoring Rubric
Question 15

*Levels 4 and 3 meet mastery and are worth one point each. Levels 2 and 1 do not meet mastery and are not worth any points. The students MUST correctly answer at least 2 of the three criteria in the question (for example, A and C or B and C) in order to receive one point credit.

4	All parts correct and clear! The student correctly lists each of the five steps in the division process (divide, multiply, subtract, bring down, remainder). The student clearly explains why it is important to know the steps in the process of division. The student displays a deep understanding of the process of division by describing, in at least two sentences, how division is used in real life situations.
3	Few mistakes! The student correctly completes two of the following three criteria: Lists each of the five steps in the division process (divide, multiply, subtract, bring down, remainder), explains why it is important to know the steps in the process of division and/or describes how division is used in real life situations in at least two sentences.
2	Some parts correct/concept unclear. The student correctly completes one of the following three criteria: Lists each of the five steps in the division process (divide, multiply, subtract, bring down, remainder), explains why it is important to know the steps in the process of division and/or describes how division is used in real life situations in at least two sentences.
1	Very little correct/lack of understanding. The student does not correctly list each of the five steps in the division process (divide, multiply, subtract, bring down, remainder). The student does not clearly explain why it is important to know the steps in the process of division. The student does not describe how division is used in real life situations in at least two sentences.

APPENDIX C
Pretest Data Table

Pre-Test Data	Goal 1 Selected	Goal 1 Selected	Goal 3 Selected	Goal 3 Selected	Goal 3 Selected	Goal 1 Constructed	Goal 1 Constructed	Goal 2 Constructed	Goal 1 Constructed	Goal 1 Constructed	**10 Points**
Student Names	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	**Total Points**
Ashley	1	0	1	0	0	1	1	1	1	0	6
Ashlyn	0	0	0	0	0	0	0	0	0	0	0
Brianna	0	1	1	0	0	1	1	0	1	1	6
Cody	0	0	0	0	1	1	0	1	1	0	4
Devin	0	1	1	0	0	0	0	0	1	0	3
Emily	0	0	0	0	0	1	1	0	1	0	3
Hallie	0	1	1	0	0	0	1	0	1	0	4
Hunter	0	1	1	0	1	1	1	1	1	1	8
Jenny	0	1	0	0	0	0	1	0	1	1	4
John M	0	0	1	0	0	0	1	0	1	0	3
Juan	0	0	0	1	1	1	0	0	1	0	4
Katie	0	1	1	1	0	1	0	0	0	0	4
Kelsey	0	1	1	0	0	0	1	1	1	1	6
Lexi	0	0	1	1	0	0	1	0	1	1	5
Lily	0	1	0	1	0	0	1	0	1	0	4
Marissa	0	1	0	0	0	1	0	0	1	1	4
Matt	1	1	0	0	1	0	1	1	0	0	5
Shelby	0	0	1	0	0	1	1	1	1	0	5
Taylor	0	1	1	1	0	0	1	0	0	1	5
Tessa	1	0	1	1	0	1	0	1	1	0	6
Total # Correct	3	11	17	11	6	10	13	7	16	7	
# of Students	20										

Pre-Test Data	Goal 1 Constructed	Goal 1 Constructed	Goal 3 Performance	Goal 2-3 Performance	Goal 2 Performance	Total #1-10	Total #11-15	**15 Points**	
Student Names	#11	#12	#13	#14	#15			**Total Points**	**Score**
Ashley	0	1	0	0	0	6	1	7	47%
Ashlyn	0	0	0	1	0	0	1	1	7%
Brianna	1	1	1	1	0	6	4	10	67%
Cody	1	1	1	0	0	4	3	7	47%
Devin	0	0	1	0	0	3	1	4	27%
Emily	1	0	0	1	0	3	2	5	33%
Hallie	0	0	1	1	0	4	2	6	40%
Hunter	1	1	0	0	0	8	2	10	67%
Jenny	1	0	1	1	0	4	3	7	47%
John M	0	0	0	0	0	3	0	3	20%
Juan	1	0	0	0	0	4	1	5	33%
Katie	0	0	0	0	0	4	0	4	27%
Kelsey	1	1	0	0	0	6	2	8	53%
Lexi	1	1	0	0	1	5	3	8	53%
Lily	1	0	0	0	0	4	1	5	33%
Marissa	1	1	1	1	0	4	4	8	53%
Matt	0	0	0	0	0	5	1	5	33%
Shelby	0	0	1	0	0	5	1	6	40%
Taylor	1	0	0	0	1	5	2	7	47%
Tessa	0	0	0	0	0	6	0	6	40%
Total # Correct	10	7	8	10	1				
# of Students	20								
Goal 1 (8pts)	0 students met mastery								
Goal 2 (3pts)	0 students met mastery								
Goal 3 (5pts)	0 students met mastery								

Brianna

Teacher's Checklist for Centers

Lesson 5: Division in Real Life

Ashley Hagan

Criteria	*Check*
Center A (Multiplication Station):	
Selected 2 of the given multiplication problems and solved them.	✓
Wrote the inverse equations of both problems.	✓
Wrote at least 1 sentence explaining how the problems were solved.	✓
CENTER B (Cool Creations):	
Creatively colored and decorated the plate as a group.	✓
Created a division problem by dividing slices of pizza between group members equally.	✓
Cut the pieces equally and wrote many division problems on the piece(s) of pizza.	✓
CENTER C (The Real World)	
Correctly solved one of the word problems with the base-ten blocks.	✓
Illustrated how the blocks were grouped to solve the problem.	✓
Discussed with a partner why division is important in real life and recorded.	✓

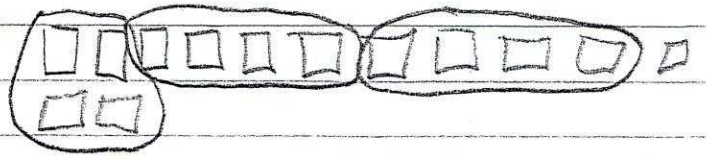
Comments:

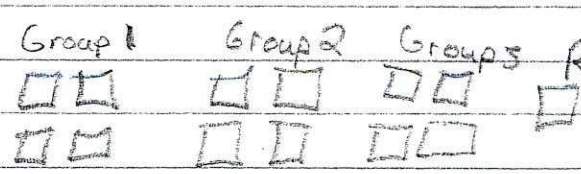
Excellent teamwork while completing your group work together during centers!! Be proud of how hard you worked to get through each problem and showed your work on all of them! Very good job! Keep up the good work, Brianna!! ☺

Briana

Read World

#3) 3 R1
4 | 13
-12
1





Its important for life because if you ever work in a grocery store and you enter the wrong numbers you would have to divide to find the right price.

Multiplication Station

#1) $9 \times 2 = 18$ $8 \times 5 = 40$

#2) $18 \div 2 = 9$ $40 \div 5 = 8$ $18 \div 9 = 2$ $40 \div 8 = 5$

#3) I multiplied 9×2 and got 18.
I multiplied 8×5 and got 40.

Cool Creations

$8 \div 3 = 2 R2$

Brianna

Student Checklist Form

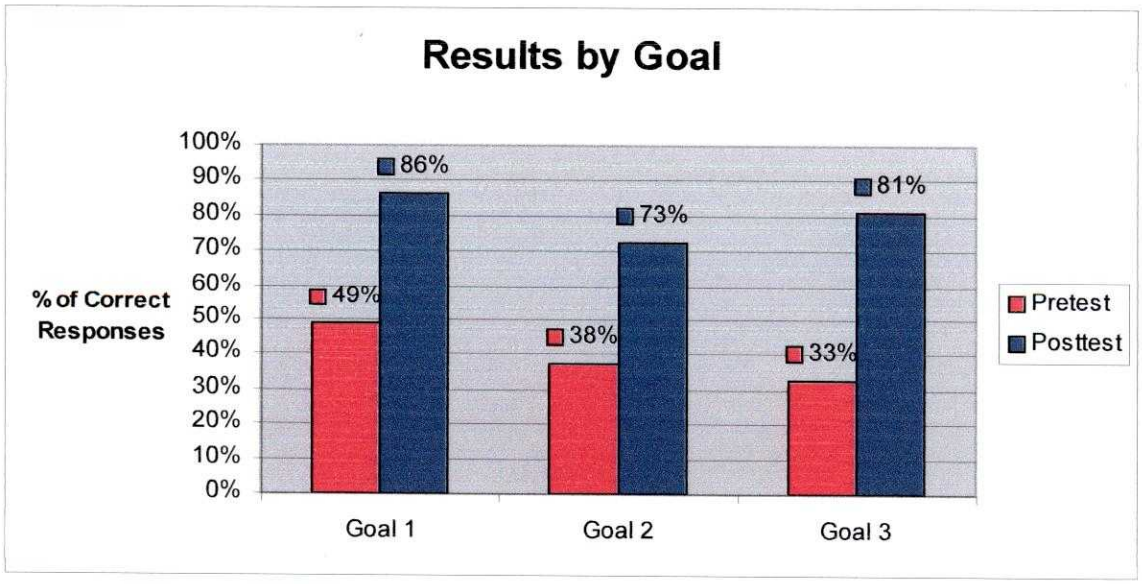
*Place a check by each of the criteria as you complete it!

Criteria	*Student's Check*
Center A (Multiplication Station):	
I chose 2 multiplication problems and solved them.	✓
I wrote the 2 inverse equations of each problem.	✓
I wrote at least 1 sentence explaining how I solved.	✓
CENTER B (Cool Creations):	
My small group and I colored the plate creatively.	✓
We created a division problem and filled in the blanks.	✓
We used a ruler to cut the pieces and I wrote many division problems on my piece(s) of pizza.	✓
CENTER C (The Real World)	
I read and solved one of the word problems with the blocks.	✓
I drew a picture of how I grouped the blocks to solve.	✓
I chose a partner and we discussed why division is important in real life, writing down what we said.	✓

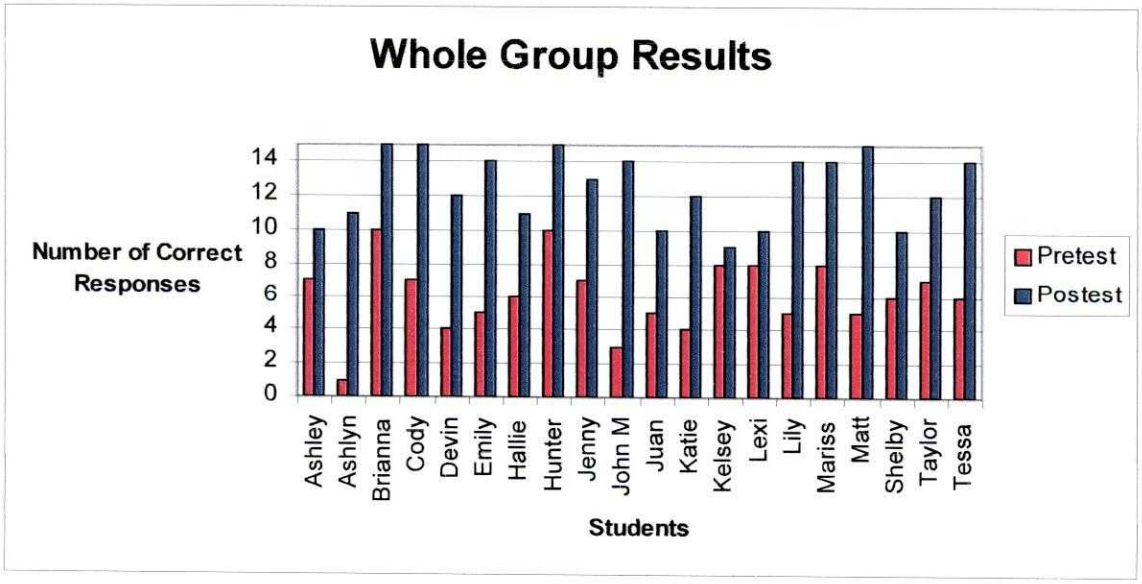
APPENDIX E
Learning Goal Results Table

Students	LG 1 results		LG 2 results		LG 3 results	
	PRE	POST	PRE	POST	PRE	POST
Ashley	62	75	50	50	20	60
Ashlyn	0	88	50	50	0	60
Brianna	88	100	50	100	60	100
Cody	50	100	50	100	40	100
Devin	25	75	0	50	40	100
Emily	50	100	50	100	20	80
Hallie	38	75	50	100	60	60
Hunter	88	100	50	100	40	100
Jenny	63	88	50	100	20	80
John M	25	100	0	100	20	80
Juan	38	75	0	0	40	80
Katie	25	75	0	100	40	80
Kelsey	75	63	50	100	20	40
Lexi	63	75	50	50	40	60
Lily	50	88	0	100	20	100
Marissa	75	100	50	50	40	100
Matt	38	100	50	100	20	100
Shelby	38	75	50	50	40	60
Taylor	50	88	50	50	40	80
Tessa	38	88	50	100	40	100

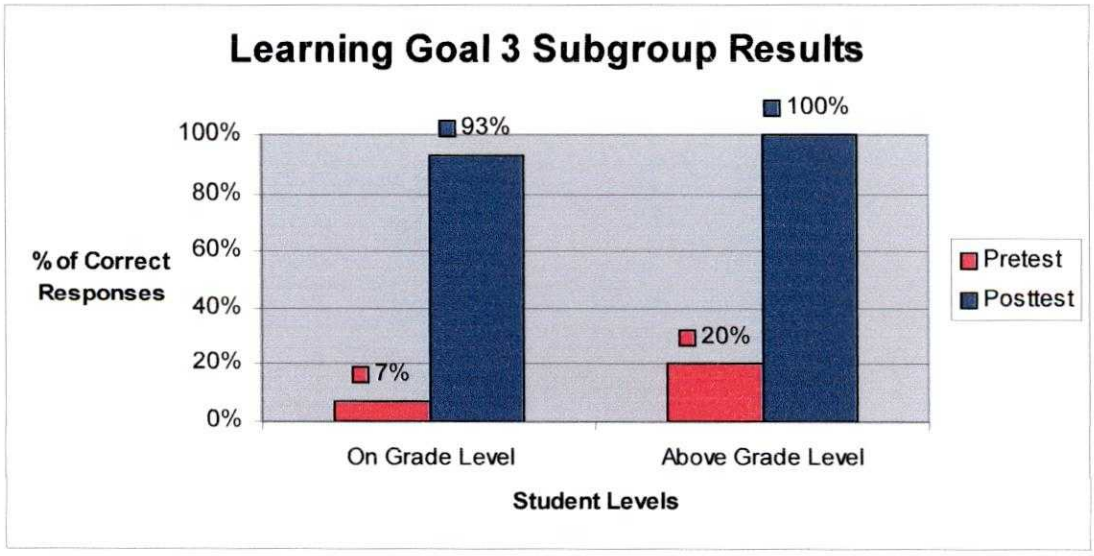
APPENDIX F
Learning Goal Results Graph



APPENDIX G
Whole Group Results Graph



APPENDIX H
Learning Goal 3 Subgroup Results Graph



Appendix L

Date: _____ Name: Cody

8/15

47

SECTION A Directions: Circle the letter that BEST fits the answer.

*Name the RED number in each of the following equations. (#1-2)

1.) $3\overline{)621}$

a.) divisor
b.) quotient
c.) dividend
d.) none of the above

2.)
$$\begin{array}{r} 473 \\ 2\overline{)947} \\ -8 \\ \hline 14 \\ -14 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$$

a.) remainder
b.) quotient
c.) dividend
d.) none of the above

*Find the next step in each of the following equations. (#3-5)

3.)
$$\begin{array}{r} 2 \\ 4\overline{)93} \\ -8 \\ \hline \end{array}$$

a.) subtract
b.) multiply
c.) bring down
d.) none of the above

4.) $5\overline{)642}$

a.) bring down
b.) multiply
c.) divide
d.) none of the above

5.)
$$\begin{array}{r} 8 \\ 6\overline{)48} \end{array}$$

a.) divide
b.) multiply
c.) subtract
d.) none of the above

-4

*Fill in the blanks with the BEST answer. (#6-8)

6.) The inverse operation of division is multiplication.

7.) The third step in the process of division is divide.

8.) Make the following sentence true by filling in the blank with the appropriate numbers. You may use the space provided to work out an equation and make sure it fits!

If 2 is the dividend and 2 is the divisor, then the quotient is 1, and the remainder is 0.

$$\begin{array}{r} 1 \\ 2\overline{)2} \\ \underline{2} \\ 0 \end{array}$$

SECTION B Directions: Solve the following problems and write the answer on the line provided (include remainders if there are any). Show your work! (#9-12)

9.) $4\overline{)12} =$ 3

11.) $6\overline{)26} =$ 4 r2

10.) $3\overline{)16} =$ 4 r4

12.) $2\overline{)48} =$ 24

SECTION C Directions: Read the following problems and answer in the given space. Be creative! (#13-15)

13.) Kelly, Matt and Andrew each came to school with 6 pencils.

A.) Create an equation below to show the total number of pencils the students brought to school. (You may use the given blocks to help you).

6 x 3 = 18

B.) If they divided the total number of pencils by 3, how many pencils would each child have? If they divided the total number of pencils by 6, how many pencils would each child have?

(ok) 6 | 3

C.) Explain how you got your answers in parts A and B. Show your work below.

I used the blocks. $\begin{array}{r} 6 \\ \times\ 3 \\ \hline 18 \end{array}$ | $3\overline{)18}$ 6, 18, 0 | $3\overline{)18}$ 6, 18, 0

14.) Your class is taking a trip to Holiday World. 17 children are going on the trip and only 3 children can ride in each car.

(2)

A.) How many cars are needed on the trip? Use the given blocks to help you solve.

6

B.) Illustrate a picture below of the division problem you solved in part **A**.

$$3\overline{)18}\quad 5,\ 17,\ 2$$

C.) Describe how you used the base-ten blocks to help you solve the problem.

I didn't

15.) **A.)** List the 5 steps in the division process below.

(1)

a.) divide

b.) bring down

c.) bring down

d.) multiply

e.) add

B.) Explain, in your own words, why it is important to know these steps.

to make division easier

C.) Describe how you can use division in real life situations in at least two sentences.

You could solve problems and give back change.

,2

Date: _____ Name: Cody

100

SECTION A Directions: Circle the letter that BEST fits the answer.

*Name the RED number in each of the following equations. (#1-2)

LG1 1. $3\overline{)621}$

a.) divisor
b.) quotient
c.) dividend
d.) none of the above

LG1 2. $\begin{array}{r} 473 \\ 947 \\ -8 \\ \hline 14 \\ -14 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$

a.) remainder
b.) quotient
c.) dividend
d.) none of the above

*Find the next step in each of the following equations. (#3-5)

LG3 3. $\begin{array}{r} 2 \\ 4\overline{)93} \\ -8 \end{array}$

a.) subtract
b.) multiply
c.) bring down
d.) none of the above

LG3 4. $5\overline{)642}$

a.) bring down
b.) multiply
c.) divide
d.) none of the above

LG3 5. $\begin{array}{r} 8 \\ 6\overline{)48} \end{array}$

a.) divide
b.) multiply
c.) subtract
d.) none of the above

-0

*Fill in the blanks with the BEST answer. (#6-8)

LG1 6.) The inverse operation of division is multiply.

LG1 7.) The third step in the process of division is subtract.

LG2 8.) Make the following sentence true by filling in the blank with the appropriate numbers. You may use the space provided to work out an equation and make sure it fits!

If 6 is the dividend and 2 is the divisor, then the quotient is 3, and the remainder is 0.

$$2\overline{)6} \quad 3, \quad -6, \quad 0$$

Good!

SECTION B Directions: Solve the following problems and write the answer on the line provided (include remainders if there are any). Show your work! (#9-12)

LG1 9.) $4\overline{)12} = 3$ (3, −12, 0)

LG1 11.) $6\overline{)26} = 4R2$ (4, −24, 2)

LG1 10.) $3\overline{)16} = 5R1$ (5, −15, 1)

LG1 12.) $2\overline{)48} = 24$ (24, −4, 08, −8)

SECTION C Directions: Read the following problems and answer in the given space. Be creative! (#13-15)

LG3 **13.**) Kelly, Matt and Andrew each came to school with 6 pencils.

(4)

A.) Create an equation below to show the total number of pencils the students brought to school. (You may use the given blocks to help you).

$6 \times 3 = 18$

B.) If they divided the total number of pencils by 3, how many pencils would each child have? If they divided the total number of pencils by 6, how many pencils would each child have?

6 | 3

C.) Explain how you got your answers in parts **A** and **B**. Show your work below.

I multiplied + divided

$6 \times 3 = 18$ (1, 6, ×3, 18)

$6\overline{)18}$ (3, −18, 00) $3\overline{)18}$ (6, −18, 00)

-0

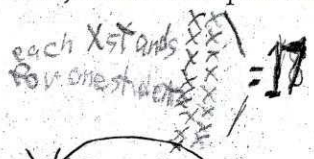
LG2-3 **14.)** Your class is taking a trip to Holiday World. 17 children are going on the trip and only 3 children can ride in each car.

(3)

A.) How many cars are needed on the trip? Use the given blocks to help you solve.

6 cars

B.) Illustrate a picture below of the division problem you solved in part **A**.



X = 1 car so 6 18 -17 x3 18 1

C.) Describe how you used the base-ten blocks to help you solve the problem.

I did not use them. How did you solve?

LG2 **15.)** **A.)** List the 5 steps in the division process below.

(3)

a.) divide

b.) multiply

c.) subtract

d.) bring down

e.) repeat/remainder

B.) Explain, in your own words, why it is important to know these steps.

in real life, you might have to do it why??

C.) Describe how you can use division in real life situations in at least two sentences.

You could divide a pie. You could divide a set of cupcakes.

-0

Appendix J

-7/15

Date: _____ Name: Kelsey

53

SECTION A Directions: Circle the letter that BEST fits the answer.

*Name the RED number in each of the following equations. (#1-2)

1.) $3\overline{)621}$

a.) divisor
b.) quotient
c.) dividend
d.) none of the above

2.) $2\overline{)947}$

$$\begin{array}{r} 473 \\ 2\overline{)947} \\ -8 \\ \hline 14 \\ -14 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$$

a.) remainder
b.) quotient
c.) dividend
d.) none of the above

*Find the next step in each of the following equations. (#3-5)

3.) $4\overline{)93}$ (2; -8)

a.) subtract
b.) multiply
c.) bring down
d.) none of the above

4.) $5\overline{)642}$

a.) bring down
b.) multiply
c.) divide
d.) none of the above

5.) $6\overline{)48}$ (8)

a.) divide
b.) multiply
c.) subtract
d.) none of the above

-3

*Fill in the blanks with the BEST answer. (#6-8)

6.) The inverse operation of division is answer.

7.) The third step in the process of division is subtract.

8.) Make the following sentence true by filling in the blank with the appropriate numbers. You may use the space provided to work out an equation and make sure it fits!

If 14 **is the dividend and** 6 **is the divisor, then the quotient is** 2**, and the remainder is** 2**.**

$$6\overline{)14} \quad 2 \text{ R}2, \quad -12, \quad 2$$

SECTION B Directions: Solve the following problems and write the answer on the line provided (include remainders if there are any). Show your work! (#9-12)

9.) $4\overline{)12} =$ 3 R0

$$4\overline{)12}, \quad -12, \quad 00$$

10.) $3\overline{)16} =$ 5 R1

$$3\overline{)16}, \quad -15, \quad 01$$

11.) $6\overline{)26} =$ 4 R2

$$6\overline{)26}, \quad -24, \quad 02$$

12.) $2\overline{)48} =$ 24 R0

$$2\overline{)48}, \quad 48, \quad 00$$

SECTION C Directions: Read the following problems and answer in the given space. Be creative! (#13-15)

13.) Kelly, Matt and Andrew each came to school with 6 pencils.

A.) Create an equation below to show the total number of pencils the students brought to school. (You may use the given blocks to help you).

F=6k

B.) If they divided the total number of pencils by 3, how many pencils would each child have? If they divided the total number of pencils by 6, how many pencils would each child have?

6 | 3

C.) Explain how you got your answers in parts **A** and **B**. Show your work below.

A she mutiply them to get it B 6×3 =18

I got my answer by mutiplying

(2)

(7)

14.) Your class is taking a trip to Holiday World. 17 children are going on the trip and only 3 children can ride in each car.

(1)

A.) How many cars are needed on the trip? Use the given blocks to help you solve.

9

B.) Illustrate a picture below of the division problem you solved in part **A**.

17 ÷ 5 = 3

C.) Describe how you used the base-ten blocks to help you solve the problem.

It helps me organizem myself

15.) A.) List the 5 steps in the division process below.

(2)

a.) See how many times it goes in

b.) put the number under the other number

c.) Subtratnct

d.) find the remidair

e.) put the reminder on the top

B.) Explain, in your own words, why it is important to know these steps.

So when you get older and someone ask you one of these problems you won't now it

C.) Describe how you can use division in real life situations in at least two sentences.

To figure your taxes. And how much money you owe someone.

-2

-6 total 9/15=60%

Date: _____ Name: Kelsey

SECTION A Directions: Circle the letter that BEST fits the answer.

*Name the RED number in each of the following equations. (#1-2)

1.) $3\overline{)621}$

a.) divisor
b.) quotient
c.) dividend
d.) none of the above

2.)
$$\begin{array}{r} 473 \\ 2\overline{)947} \\ -8 \\ \hline 14 \\ -14 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$$

a.) remainder
b.) quotient
c.) dividend
d.) none of the above

*Find the next step in each of the following equations. (#3-5)

3.)
$$\begin{array}{r} 2 \\ 4\overline{)93} \\ -8 \\ \hline \end{array}$$

a.) subtract
b.) multiply
c.) bring down
d.) none of the above

4.) $5\overline{)642}$

a.) bring down
b.) multiply
c.) divide
d.) none of the above

5.)
$$\begin{array}{r} 8 \\ 6\overline{)48} \end{array}$$

a.) divide
b.) multiply
c.) subtract
d.) none of the above

3

*Fill in the blanks with the BEST answer. (#6-8)

6.) The inverse operation of division is answer.

7.) The third step in the process of division is multiplication

8.) Make the following sentence true by filling in the blank with the appropriate numbers. You may use the space provided to work out an equation and make sure it fits!

If 14 is the dividend and 6 is the divisor, then the quotient is 2, and the remainder is 2.

6)14 R2
-12
02

Nice!

SECTION B Directions: **Solve the following problems and write the answer on the line provided (include remainders if there are any). Show your work! (#9-12)**

9.) 4)12 = 3R0

4)12
-12
00

11.) 6)26 = 4R2

-24
2

10.) 3)16 = 5R1

3)16
-15
01

12.) 2)48 = 24R0

-4
08
-8
0

SECTION C Directions: **Read the following problems and answer in the given space. Be creative! (#13-15)**

13.) Kelly, Matt and Andrew each came to school with 6 pencils.

A.) Create an equation below to show the total number of pencils the students brought to school. (You may use the given blocks to help you).

18 ÷ 3 = 6 3 x 6 = 18 or 6 x 3 = 18

B.) If they divided the total number of pencils by 3, how many pencils would each child have? If they divided the total number of pencils by 6, how many pencils would each child have?

18 ÷ 3 = 6 18 ÷ 6 = 3

C.) Explain how you got your answers in parts **A** and **B**. Show your work below.

I just got it and divided the answer.

(Explain how you divided in steps).

-3

14.) Your class is taking a trip to Holiday World. 17 children are going on the trip and only 3 children can ride in each car. (4)

A.) How many cars are needed on the trip? Use the given blocks to help you solve.

6 cars 3|17 R2 5+1=6

B.) Illustrate a picture below of the division problem you solved in part A.

15+2=17 Great!

C.) Describe how you used the base-ten blocks to help you solve the problem.

I used them to group the blocks and solve division.

15.) A.) List the 5 steps in the division process below. (4)

a.) divide

b.) multiply

c.) Subtract

d.) bringdown

e.) repeat/remainder

B.) Explain, in your own words, why it is important to know these steps.

So you can divide with no calcalater at home and do math.

C.) Describe how you can use division in real life situations in at least two sentences.

I can divide money with my frends out to eat.

I will divide my toys with my brother to see we get an equal amount.

Yes! You can use division this way!! :)

-0

46