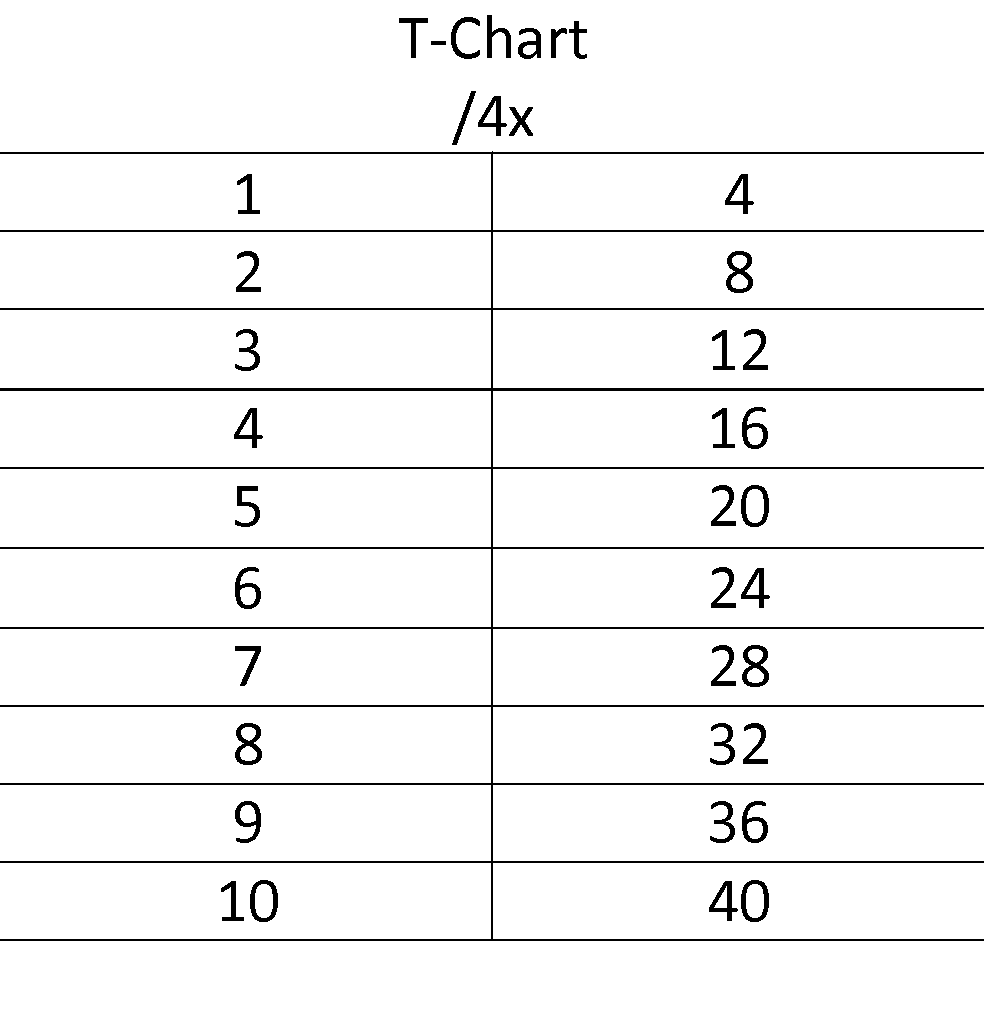
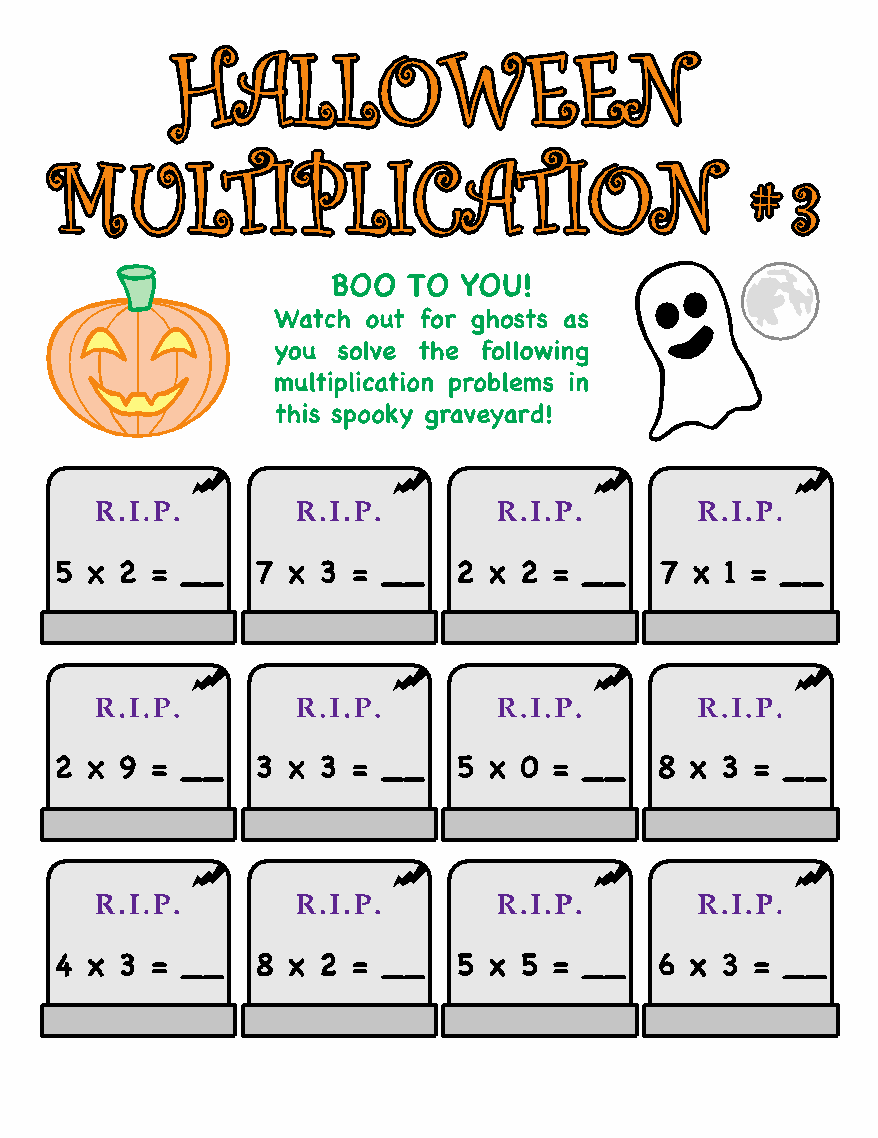
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| Name: Courtney Case & Ragan Anderson  Date: 10-31-17 Lesson Title: Multiplication and Division Using Units of 4  Grade Level: 3rd Grade  Length of Lesson (Minutes): 60 Min. | | |
| **Standards** | | |
| 3.OA.5: Apply properties of operations as strategies to multiply and divide.  3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.  Math Practices   * Make sense of problems and persevere in solving them (MP 1) * Model with mathematics (MP 4) * Use appropriate tools strategically (MP 5) * Attend to precision (MP 6) | | |
| **Central Focus of Unit/Learning Segment** | | |
| Multiplication and Division Using Units of 4  -Introduces students to multiplication by 4 through skip counting objects.  -Students will revisit the commutative property.  -Practice of multiplication and division facts is dedicated to modeling the relationship between operations using facts of 4.  Topics for Unit:   1. Skip Counting 2. Using arrays or pictures to model the problem 3. Using the distributive property as a strategy 4. Modeling the relationship between multiplication and division | | |
| **Essential Understandings** | | **Essential Questions** |
| -Skip counting units of 4.  -Using arrays and pictures to model the commutative property.  -Model the relationship between multiplication and division.  -Using the distributive property as a strategy to solve. | | -What are the different ways you can skip count units of 4?  -How are arrays and simple drawings similar? Which property of multiplication is shown with these?  -How is multiplication and division related using equations?  -Show an example of using the distributive property to solve a problem. |
| **Lesson Objectives** | | |
| 1. Skip count objects in models to build fluency with multiplication facts using units of 4. 2. Use arrays or simple pictures to model the commutative property of multiplication. 3. Use the distributive property as a strategy to find related multiplication facts. 4. Model the relationship between multiplication and division. | | |
| **Language Demands** | | |
| **Language Function & Key Learning Task**  Language Function: Model  Key Learning Task: Students will be able to make an array and a word problem based off one multiplication sentence. They will use a concrete object to make the array and then write the word problem based on the array.  **Content/Academic Vocabulary**  -Quotient: The answer after you divide one number by another.  -Dividend: A number to be divided by another number.  -Divisors: A number by which another number is to be divided.  -Factors: Numbers we can multiply together to get another number.  -Products: The result or answer of two numbers multiplied together.  **Discourse & Syntax**  Discourse:   * Students will communicate with the teacher while going through the lesson. They will help with working through the problems. * Students will work hands on with whiteboards solving the problems independently as we go over the flipchart as a class. * During the activity, students will work with one another to figure out how they are going to show their problem with their googly eyes. “Think, Pair, Share” * Students will respond orally at the end of the lesson by reading their word problems that they came up with. * Students will develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal sized-groups, arrays and area models. * Students will be encouraged to solve these problems in different ways to show the same idea and be able to explain their thinking verbally and in written expression. Allowing students to use several different strategies provides the opportunity for them to compare strategies.     Syntax:   * Students will do the hand motions while counting by 4s. * During the activity, students will formulate a story to go along with their word problem that they make up. * Students will use the googly eyes to demonstrate the multiplication problem that they are given. * Students will use repeated addition to show another way that their problem can be written. * Students will write & solve the multiplication, repeated addition, and division problems correctly and solve accurately.   Supports:   * Physical supports used to encourage discourse and syntax during the lesson include: Go Noodle Video to practice multiplication facts, working through the flipchart together while having students come up to the board and help work the problems, and using concrete objects to show a multiplication problem. * Each student will have their own white board to work the problems out hands on as we do on the board. * The teacher models how to make the foldable for the Halloween multiplication activity. * During table discussions about the activity, the teacher will walk around and prompt different questions and make sure everyone is understanding the activity. * Have a discussion of the exit tickets after the lesson is over with those students who are still struggling with the concept. | | |
| **Materials/Resources** | | |
| **Teacher**  -Go Noodle Website  -Example of T-Chart  -Smart board  -Eureka Math Flipchart  -Example of Googly Eyes Activity | **Students**  -Mult/Div Worksheets: Higher Level Learners  -Construction Paper  -White board and marker  -Googly Eyes  -Marker  -Eureka Math Worksheets: Exit Ticket  -Halloween Coloring Page: Extra Time | |
| **References** | | |
| -Go Noodle Website: <https://app.gonoodle.com/channels/game-on/mega-math-marathon?s=Search&t=division>  -Eurkea Math Book  -Target Teachers: <https://www.instagram.com/p/BayxmCSBK6t/?taken-by=targetteachers> | | |

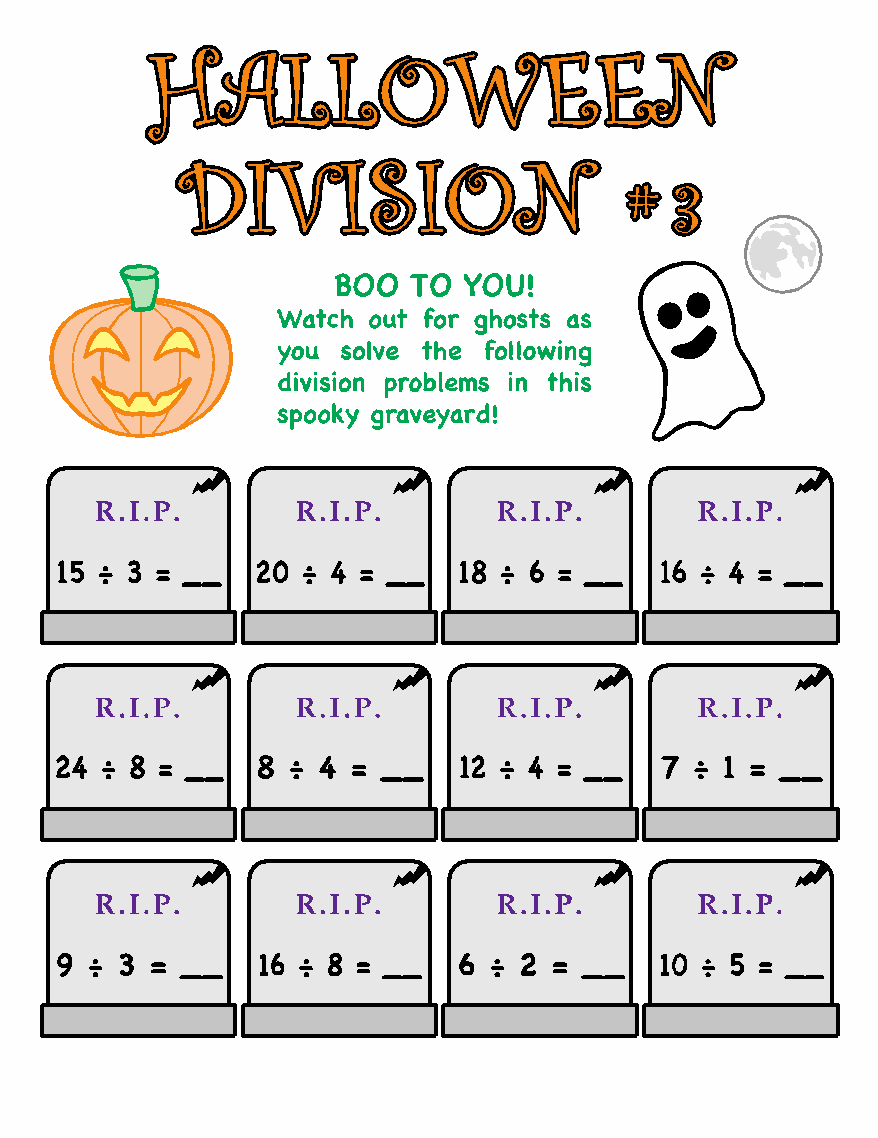
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| **Adaptations to Meet Individual Needs** |
| High-Level Learners: During the duration of the time we are going over the problems on the flipchart, these students will work separately on Halloween Multiplication and Division Worksheet.  On-Level Learners: This lesson plan is structured for on-level learners as written.  Struggling Learners: These students will receive more help with the activities. I will also be sure to let them come up to the board when working through the flipchart to make sure they are understanding what we are doing. Their exit ticket will be shorter.  English Language Learner: These students will receive more help with the activities. I will also be sure to let them come up to the board when working through the flipchart to make sure they are understanding what we are doing. Their exit ticket will also be shorter. |
| **Management/Safety Issues** |
| -Students should follow all previously established classroom rules.  -When doing the Go Noodle video, students should stay behind their seat so that everyone can see the board and so that they are not too close to one another while jogging in place.  -Students will be responsible for turning in their completed work at the back table, while being reminded to walk instead of run.  -When working with their table groups, students will be reminded to be talking and working on math so that they will stay on task. |
| **Rationale/Theoretical Reasoning** |
| **Rationale**   * T-Chart is used to help students understand the relationship between multiplication and division. * Word problems used should relate to real life things so that students can develop fluency with multiplication and division. * Students need to understand the part/whole relationships in order to understand the connection between multiplication and division. They need to develop efficient strategies that lead to the big ideas of multiplication and division. * Once students have an understanding of multiplication using efficient strategies, they should make the connection to division. * Giving feedback to students on their work is important. They need to know what they are doing right and also what they are doing wrong. * By studying patterns and relationships in multiplication facts and relating multiplication and division, students build a foundation for fluency with multiplication and division facts. Students demonstrate fluency with multiplication facts through 10 and the related division facts. Multiplying and dividing fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently. Kansas Association of Mathematics Teachers. (2011). *3rd Grade Common Core State Standards Flipbook*   Suggested Instructional Strategy:  Have students create multiplication problem situations in which they interpret the product of whole numbers as the total number of objects in a group. Ask them to write as an expression. Then, have students create division-problem situations in which they interpret the quotient of whole numbers as the number of shares.  Kansas Association of Mathematics Teachers. (2011). *3rd Grade Common Core State Standards Flipbook*  **Theory**   * Students are provided an opportunity to socially construct knowledge while working with their peers. They also have the opportunity to work in their zone proximal development. (Vygotsky, 1978) * Gardner’s Learning Styles: **Visual(Spatial):** Students were watching me draw the models on the board. These models were helpful for solving each of the problems. **Verbal(Linguistic):** The students were counting out loud. It helped them to hear their classmates and they also get to say answers out loud. **Physical(kinesthetic):** Students are moving during the gonoodle video.   **Common Misconceptions or Difficulties**  -Students have many misconceptions with multiplication and division, mostly because there are several different strategies that can be used to solve them. Students need to see examples of all of the different strategies and tool used to help them solve both multiplication and division problems.  -Students also have difficulty distinguishing between when to translate a word problem into a multiplication or division equation to solve it. Students automatically assume that if there are two different numbers then if you multiply them together then they will get the correct answer. Students should be looking for keywords or phrases in order to help them distinguish between multiplication and division problems.  - It is important that students avoid using keywords to solve problems. The goal is for students to make sense of the problem and understand what it is asking them to do, rather than search for “tricks” and/or guess at the operation need to solve the problem.  -Students think a symbol is always the place for an answer, this is especially true when the problem is written as 15 / 3 = ? \_\_ x 3 = 15.  -Students may experience difficulty in determining which factor represents rows or the number of objects in a group, and which factor represents the number of groups in each column.  Kansas Association of Mathematics Teachers. (2011). *3rd Grade Common Core State Standards Flipbook* |

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| **Assessment/Evaluation Criteria** |
| **Formative Assessment:**  -Go Noodle Video- Practicing division. Students must yell out answers to keep going. 2 Minutes Long.  -Helping teacher with drawing the T-Chart for 4s on the board- this will be a helpful reference with going through the lesson.  -Googly Eyes Activity- Giving students a problem and having them model it.  I will be using ~~a~~ formative assessment ~~probe~~ at the beginning of the lesson by asking students to complete the T Chart for 4 using multiplication. I will walk around to look and formulate questions as students are working. As students work through the lesson I will observe and ask probing questions as needed to keep students on track with the content.  **Summative Assessment**:  -Exit Ticket from Eureka Book.  Students will revisit what we went over at the beginning of class and answer 3 questions that are similar to ones we have gone over already. Students will be asked to complete these 3 questions independently. Prompt: Use words, drawings, and numbers to explain the reasoning behind the answers to the multiplication and division problems.  For on level learners each question on the assessment is worth 2 points. There are 3 parts to each question. This made the assessment worth a total of 6 points. Students need to have a 4/6 to achieve mastery.  The low level learners only had 1 question on their assessment. This question is worth 2 points and these students will need both points to achieve mastery on the content.  **Academic Feedback:**  Throughout the lesson, I will closely observe students individual strengths and weakness, but also how well they worked within their groups. I will be listening to discussions and questions carefully. These observations will provide me with evidence that can be used later to help determine what questions to ask specific students during the next lesson to access and advance their learning. I will also encourage students that are understanding the lesson to help others in their groups be successful as well by asking questions. I would allow students to make corrections on their work as needed. I would also work with them through the corrections to make sure they understand what they did and why they needed to do it differently. | |

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| **Instruction** | **Higher-Order Thinking Questions** |
| **Set/Hook/Motivator (15 mins)**   * Begin by warming them up with a Multiplication Go Noodle Video. (Multiplication Marathon) * Drawing the T-Chart on the board for reference: Have students raise their hand and orally fill out the chart. Allow them to work in their groups and brainstorm different strategies for filling out the chart. * Hand motions while counting by 4s. Have a student lead discussion about the relationship between skip counting and multiplication. | * Explain the relationship between skip counting and multiplication. * What patterns do you see on the T-Chart? |
| **Instructional Procedures (During)**   * Lesson 14 Flipchart (15 min.) * Review of 3 multiplication/division facts using words problems * Introduce 4 multiplication word problems, using arrays, groups and pictures to solve them. * The flipchart goes through different examples of multiplication and division problems. * The problems involved were mainly word problems. * The students help with solving these on the board. * The flipchart is very good with showing the students how to model the different problems. * Halloween Multiplication Activity (20 min.) * I have an example already made to show students as we go through the activity. * We will fold our pieces of construction paper into 4 different sections together. * Students will be instructed to look under their chairs and see if their multiplication problem is there. (There will only be one per table.) * Each student will write their problem on their construction paper. * Each student will then use the multiplication problem to make an array out of the googly eyes on their piece of construction paper. * Next, each student will write the repeated addition problem for their multiplication problems. * Lastly, I will read my sample story to the class and have them come up with their own story to represent their problem. We will read some of these out loud to the class. | * Ask students to brainstorm different ways to solve the multiplication and division word problems within their groups. * Is there more than one way to solve multiplication word problems? * What are the different strategies that can be used? * What about division? |
| **Closure (After)**   * Exit Ticket (10 min.) | * How many ways could you make an array for one multiplication fact? * Write both repeated addition equations for the multiplication fact. * Could you turn your multiplication fact into a division problem, explain? |







**Googly Eyes Activity**

<https://www.instagram.com/p/BayxmCSBK6t/?taken-by=targetteachers>



