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| **Teacher: Ms. Bennet, Ms. Cruz, Ms. Moore, Ms. Pardom, Ms. Ybarra,** |
| **Date: 11/10/2015** |
| **Subject: grade level 4** |
| **Materials:**   1. **Base ten blocks** 2. **Book, Ten Times Better** 3. **Dry erase boards and markers**   **Vocabulary: units, tens, product, partial product** |
| **TEKS:** 4.4 (C) Represent the product of 2 two-digit numbers using arrays, area models, or equations, including perfect squares through 15 by 15. |
| **ENGAGEMENT: Book: Ten Times Better**  **The teacher will in engage students by reading the *Ten Times Better* Book. As the teacher reads the book to the class, each students will follow along closely and write/show multiplication number sentences on the Ten Times Better worksheet. Teacher will pause throughout the book to address the following higher order thinking questions:**  **HOTs:**   1. **Knowledge: Can you tell me why the animals are using the expression “ten times better”?** 2. **Synthesis: What do you predict the book will say after the star says five is the hippest number?** 3. **Synthesis: How many ways can you express the value of ten times a number?** 4. **Application: From the information in the book, can you develop a short cut to multiplying by ten?** 5. **Synthesis: What would happen is you had 11X10? Could you easily figure out this solution?** |
| **EXPLORATION: Area model of two digit by two digit multiplication (numbers between 11 and 30)**   1. Teacher will pass out student hand-out. 2. Teacher will model multiplying 13 x 16. The students will solve this problem by breaking it down into four smaller problems:    * 10 x 10    * 10 x 3    * 10 x 6    * 6 x 3   2) Teacher will then ask: How can we find the product of 12 x 17 by breaking it down into four smaller multiplication problems? (10 x 10, 10 x, 2, 10 x 7, 2 x7).  3) The teacher will then allow students to work in table groups to solve this problems and two more: 22x 19, 28 x 15. The teachers will circulate around the class, helping groups that get stuck by asking questions:   * How many squares are in this section? * How can you calculate the number of squares without counting all of them? * If a 2 is in the tens place, what value is that 2 representing? |
| **EXPLANATION: Students share strategies for finding partial products**   1. Groups will be called on to show their solutions to problems 2, 3, and 4. 2. Teacher will continue to reinforce the vocabulary of partial products, final product. |
| **ELABORATION: Students solve application problems based on Minecraft working in groups on dry erase boards.**   1. Teacher will give each student a copy of the Minecraft Multiplication Hand-out. 2. Ask a student volunteer to read problem one. 3. Have another student state the multiplication problem.. 4. Have students write: 16 x 17. 5. Tell students that we are going to divide this into four separate multiplication problems to find partial products. 6. Ask for volunteers to share each of the four multiplication problems:    * 10 x 10    * 10 x 7    * 6 x 10    * 6 x 7   6. In groups students will use dry erase boards to solve the problem.  7. Have a volunteer read problem two.  8. Ask for a volunteer to state the multiplication problem.  9. Have students work in groups on dry erase boards to find the partial products and solve the problem.  10. Teachers will circulate problems, helping students who get stuck and checking for understanding. |
| **EVALUATION: Students solve application problem individually based on Minecraft.**   1. Teacher states that we have been working in groups today but now it is time to see what you have learned. 2. Call on a volunteer to read the problem. 3. What information do you need to know to solve this problem (the number of hours in a day is 24). 4. Have students work independently on this problem. 5. Teachers can offer support as needed. |