**Zeros in the Product Lesson**

**Grade Level:** 5th Grade

**Subject Area:** Math

**Materials Needed:** Smart Board, Math workbooks, pencils

**Standard:**

* ***5.NBT.7* 🡪** Add, subtract, **multiply**, and divide decimals to hundredths, using concrete models or drawings and **strategies based on place value**, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used

**Objectives:**

* Students will recognize the importance of zeros as a placeholder.
* Students will complete multiplication problems of decimals.
* **Cognitive Level of Bloom’s Taxonomy:** knowledge, application

**Learning Activities:**

* Opening Element: SETTING A PURPOSE FOR LEARNING
* You have already been working with multiplying decimals. But for the most part, you were always multiplying by a whole number or by decimals that have a number in each place value. Today we will be learning the power of zero. In the past we always talked about how zero can be added to the end of a number or left off and it didn’t matter; that is still true but if we have zeros anywhere else in our answer, they have meaning and cannot be left out.
* Let me show you what I mean. Please turn to page 277 of your math workbooks.
* Who wants to read where it says, “Connect”?
  + That is what we are going to work to find out today. Don’t get nervous, this is nothing new, just a problem that looks a little bit different from what you have already been doing.
* Okay, now I need somebody to read the problem.
* So, based on what we just read, what are they asking us to do? Let’s write that in our little blue box in the corner.
* As the page shows, there are some tricks we can do to solve these problems. Our problem is 0.4 X 0.2.
* First it shows us that we can multiply our numbers as if they are whole number—2 X 4 = 8. We can write the 8 just below the 2 and the four in our regular problem just as they have shown.
  + This is where we need to think about where we are going to put our decimal. We know that multiplying decimals is different than adding decimals and we can’t just bring our decimal straight down. So, what do we do? Think about the rule Mrs. Fuller gave you about multiplying decimals.
  + That rule tells us that the decimal needs to be put one place to the left of the 8 which is why I told you that the zero has power. We need a zero to hold that place, otherwise somebody else looking at our number might only read it as 0.8 and we know that that is 10 times bigger than 0.08—that would be a big mistake.
* **Guided Practice:**
  + Teacher will do Page 278 of their workbooks with them.
* **Individual Practice:**
  + Students will complete problems 1-6 on Page 279 of their workbooks with partners.
  + Students will complete problems 7-14 on their own.
* **Differentiation:**
  + Students will work with mixed ability partners.
  + Visual 🡪 practice problems are projected on the board
  + Auditory 🡪 problems are discussed verbally
  + Interpersonal 🡪 working in partners
* **Wrap Up:**
  + Zero may not have a numerical value but as we can see in our problems today, that does not mean that it has no power. We need to make sure to take our time and pay attention to our zero placeholders when we are multiplying decimals.

**Assessment:**

* Formative: Students will complete workbook pages 281 and 282
* Summative: A Chapter Test will be administered by the regular classroom teacher