Supermarket Multiplication

Lesson Summary	Students will learn that multiplication of decimals is no different from multiplication of whole numbers. The only difference is that the decimal must be placed in the product in the correct position.

Major Topic and SOL

Math SOL (2009)	5.5 a) The student will find the product of two numbers expressed as decimals through thousandths 5.5 b) Create and solve single-step and multistep practical problems involving decimals

Length of Unit

Three 45 minute class periods

Student Objectives

- **Mathematics, the student will be able to:**
  - find the product of two numbers expressed as decimals through thousandths, using paper and pencil
  - use partial products or place value, the standard algorithm, and/or lattice method to multiply decimals by decimals
  - place he decimal point correctly in the product
- **Language, the student will be able to:**
  - understand the meaning of multiplication as repeated addition
  - identify the product and factor of a multiplication problem
  - understand the terms partial products
  - understand the term decimal
  - understand the term lattice method

21st Century Skills

- Critical-thinking and Problem Solving
- Communication
- Creativity and Innovation
- Collaboration
- Information and Media Literacy
- Contextual Learning

Assessment Evidence

- During guided practice and independent work the teacher will observe what the students are doing. The teacher will give a formative assessment Quick Check 7-2 and 7-4, which addressed placement of decimal, multiplication and solving word multiplication problems.

Supplies/Materials/Technology
- Teacher Materials
  - Internet asset for visual lesson
- Student Materials
  - Interactive Learning Recording Sheet 16 (Supermarket produce prices)
  - Tiered worksheets for independent seat work
  - Quick Check 7-2 and 7-4

Lesson Plan
Motivation & Building Background:
- Motivation:
  - Ask students the question, "When in everyday life do you multiply with decimals?"
- Background:
  - Students have learned how to multiply whole numbers using various methods of multiplication. Some students multiply by using the partial product method, lattice method, or standard algorithm. They will continue to use these variations to complete problems with decimal multiplication.
  - Students are aware that when we go to Wal-Mart or McDonalds to find the cost of two identical items or when we deposit different denominations of money into the bank we use decimals. We know when we add, subtract, or divide decimals we line the decimals up, but when we multiply decimals, we don't line them up but multiply just like we multiply whole numbers by whole numbers.

Presentation:
- Day 1
  - Watch and interact with Visual Learning video (7-4) from www.pearsonsuccessnet.com or any power point presentation that visually explains multiplication of decimals.
  - Link how multiplication of decimals is no different from multiplication of whole numbers.
  - Write these multiplication problems on the chalkboard without any decimals in the answers.

81.82	30.8	43.214	2.9
x 4.8	x 7.6	x 5.345	x 0.863
392.736	32.408	230.978830	2.5027

  - Guided Practice - Hartcourt Math Practice Book page PW 42 #s 15, 16, 17, 18 or you may provide solved decimal multiplication problems without the decimal in the product
- Day 2
  - Review how to place decimal in product.
  - **Students will complete worksheet using their process of multiplication. The activity is tiered according to process. One group of students will use the**

partial product method, another group will use the lattice method, and the 3rd group will use standard algorithm method.

- Distribute Interactive Learning Recording sheet 16 to each student.
- Pose the Problem - Suppose you are going to make fruit salad and need the amounts shown. About how much will each kind of fruit cost.
- Ask students, "What has the question in the problem ask you to do? *(Estimate)* How do you estimate? (*Multiply as a whole number.*) How do you multiply a whole number and a decimal? (*Multiply as a whole number. Count decimal places in the factors and insert decimal in the product the same number of places from the right.*)
- Have students record their answers in the first column (Estimated Costs).
- Reinforce multiplication of decimals by saying, "To find the exact cost, multiply the decimals as if they were whole numbers. This gives the correct digits of the product."
- Have students find the exact cost.
- Students will record their answers in the next column (Exact Costs).
- next students will compare their estimates with the exact costs. Make sure they place the decimal point so both answers are as close as possible. Ask what patterns do you notice? How can you make the costs practical? (*Round to the nearest penny.*)
- have students record practical answers in the last column (Practical Answers.)
- students complete questions 1, 2, and 3 to check for understanding.

Practice/Application:
- Day 3
  - Independent Practice (Tiered Worksheets)