

MULTIPLICATION OF DECIMALS

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

3

Overview

This lesson plan covers teaching content for;

1. Multiplying decimal numbers by multiples of 10
2. Multiplying decimals by 2 digit numbers
3. Word problems on multiplication of decimals

Objectives

Students should be able to;

1. Multiply decimals by 2-digit whole numbers.
2. multiply decimals using the standard algorithm.
3. Solve quantitative reasoning problems involving multiplication of decimals

Activity Starter/Instruction

1. Pupils should practise mentally multiplying decimals by 2, 3, 4 and 5. Explain each strategy in turn, and give them several examples to do before moving on to the next one.
 - × 2 double the number
 - × 3 double and add original number (for example $3 \times 24 = 48 + 24 = 72$)
 - × 4 double and double again
 - × 5 halve and multiply by 10 (for example $5 \times 24 = 12 \times 10 = 120$)
2. Also practice multiplying decimals that are less than 1, for example 0.5×6 .
3. Explain that they are simply using their knowledge of multiplication facts and of place value.

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. Revise counting forwards and backwards in 10s, starting at any multiple of 10 to 1 000. Then, count forwards and backwards in 10s starting at any other 2- or 3-digit number.
2. Practice multiplying mentally by 10, for example 34×10 , 45×10 , $560 \div 10$ and $2\ 300 \div 10$.
3. Ask the pupils if they can see any pattern in the answers. Make sure that they can see that the digits move one place to the left in multiplication (the units' digit becomes the tens' digit, the tens' digit become the hundreds' digit and so on).
4. make sure that all the pupils are comfortable with the multiplication of a decimal by 10 and its multiples.
5. Test the students using sample questions

Materials Required

- White Board
- Blank sheets
- Pencils
- Multiplication tables

Additional Resources

- <http://rightstartmath.com/wp-content/uploads/2015/08/2016.pdf>
- <http://www.math.com/school/subject1/lessons/S1U1>
- <https://www.education.com/lesson-plan/multiply-dec>
- https://za.pearson.com/content/dam/region-growth/africa/TeacherResourceMaterial/9781447978411_ngr

Additional Notes

	<p>Guided Practice</p> <p>Day 2/ Lesson 2: 15 Mins</p> <p>Explain to the students that to multiply decimal numbers:</p> <ol style="list-style-type: none"> 1. Multiply the numbers just as if they were whole numbers. 2. Line up the numbers on the right - do not align the decimal points. 3. Starting on the right, multiply each digit in the top number by each digit in the bottom number, just as with whole numbers. 4. Add the products. 5. Place the decimal point in the answer by starting at the right and moving a number of places equal to the sum of the decimal places in both numbers multiplied (i.e. count the number of decimal places of the 2 numbers being multiplied.) $ \begin{array}{r} 37.7 \times 2.8 = ? \text{ --->} \\ \begin{array}{r} 37.7 \text{ (1 decimal place)} \\ \times 2.8 \text{ (1 decimal place)} \\ \hline 3016 \\ +754 \\ \hline 105.56 \text{ (2 decimal places, move point 2 places left)} \end{array} \end{array} $ <ol style="list-style-type: none"> 6. You could use estimating to help you check the placement of the decimal point. You could round 37.7 to 40 and 2.8 to 3. It's easy to multiply 3×40 so you know your answer should be close to 120. 	<p>Guided Practice</p> <p>Day 3/ Lesson 3: 15 Mins</p> <ol style="list-style-type: none"> 1. Write a decimal multiplication problem on the board (i.e., 0.24×0.97). 2. Explain that when multiplying decimals, you can ignore the decimal place and multiply using the standard algorithm normally. 3. Demonstrate by multiplying the two numbers (the product is 2,328). 4. Point out that both factors are less than one. The teacher could say, "What is one times one? If both factors are less than one, our product should be less than one." 5. Point out the answer you've written on the board (2,328) and ask, "Is this a logical answer?" 6. Explain that even though you can multiply normally, as you would with whole numbers, you must add the decimal back into the product in the correct place. 7. Tell students that the product will have the same number of digits behind the decimal place as both factors combined. 8. Count the digits behind the decimal in the factors (4). Then add the decimal into the product with the same number of digits behind it (i.e., 0.2328).
<p>Assessment Activity</p>	<p>Assessment Activity</p> <p>Guide students through another example (e.g., 7.96×0.4).</p> <p>Give students a problem to solve with a partner (e.g., 0.37×5.2).</p>	<p>Assessment Activity</p>

	Give students a "try it" problem to solve independently (e.g., 0.61×1.85). Circulate and offer support as needed. Then go over the problem as a class.	
Summary	<p>Review and Closing</p> <p>To multiply decimal numbers, first find an estimate for the solution. Then ignore all decimals and multiply as if they were whole numbers. Reason where to place the decimal based off the estimate.</p>	<p>When multiplying a number by a multiple of ten, just move the decimal point one space to the right for every zero.</p> <p>$10 \times 0.6284 = 6.284$ (1 zero, 1 space right)</p> <p>$100 \times 0.6284 = 62.84$ (2 zeroes, 2 spaces right)</p> <p>$1000 \times 0.6284 = 628.4$ (3 zeroes, 3 spaces right)</p> <p>$10,000 \times 0.6284 = 6284$ (4 zeroes, 4 spaces right)</p> <p>$100,000 \times 0.6284 = 62,840$ (5 zeroes, 5 spaces right)</p>