MULTIPLICATION BY 3-DIGIT NUMBERS

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Solving problems involving multiplication by 3-digit numbers.

Objectives

Students should be able to;

1. Know basic definitions for multiplication
2. Solve multiplication problems with a three-digit factor.
3. Use multiple strategies for multiplying three-digit numbers.

Activity Starter/Instruction

1. Teacher tells pupils that the most important thing to remember when performing multiplication by 3-digit number, is that you must multiply all of the digits in the top number by all of the digits in the bottom number.
2. You do this by following these steps:
I. Step 1: Place the number with the most digits on the top of your multiplication problem (if they both have the same number of digits, then order does not matter).
II. Step 2: Begin multiplying each digit in the top number - starting in the Ones place, by each digit in the bottom number, also starting in the Ones place. Then moving to the top number's Tens place and Hundred's place.
III. Step 3: If your answer is a two digit number, carry the larger place value number to the next place value.
IV. Step 4: Add on the carried over number.

Teacher Guide

Day 1/ Lesson 1: 20Mins

1. Begin the lesson by printing a sample multiplication format on a board or chart. For example, you might share this format for multiplying a 3-digit number times a 3-digit number.

```
    ____ ____ ____
  × ___ ____ ____
    ------------------------
```

2. Show students a deck of cards that has been shuffled after removing the aces, 10s, and face cards. (All that remain are cards numbered 1 to 9.) Select the top six cards from the deck. Use the cards drawn to create a multiplication problem.
3. For example, if the six cards drawn are the 4, 7, 2, 2, 1 and 9, then use those cards to fill in the spaces in the format above.

```
      __4__  __7__  __2__
  X   __2__  __1__  __9__
      --------------------------
```

4. Invite a student(s) to come to the board to perform the multiplication operations.

Materials Required

- Deck of cards
- White board
- Marker

Additional Resources

- http://www.jandmranch.com/2013/02/09/teaching-t
- https://mathgeekmama.com/multi-digit-multiplicatio
- http://www.softschools.com/math/multiplication/3_
- https://shelleygrayteaching.com/effective-strategies-
- https://www.havefunteaching.com/resource/math/3x
-

Additional Notes

V. Step 5: Repeat Step 2 - 4, multiplying all of the digits in the top number by the bottom number's Tens place digit.

VI. Step 6: When all the digits in the top number have been multiplied by all the digits in the bottom number, add the answer rows to get the correct answer.

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. Multiplying by 3-digit numbers can be broken down into a few steps. We will use numbers A and B to refer to our two 3-digit numbers.
2. Focusing on one of the 3-digit numbers (in this case, we will use A), multiply the digit in the ones place value of A by B. Using A's tens place value, now multiply it by B. Then, multiply A's hundreds place value by B. Finally, add up the values found.
3. Teacher writes 502 X 336, for this example, we will use 336. Thus, we multiply 502 by 6, the number in the ones place of 336.
4. After multiplying 502 by 6, add a zero beneath the two in 3,012. The reason for doing this is because we will now be multiplying 502 by 30 since the 3 is in the tens place of 336.
5. After completing this step, you may proceed to multiply 502 by 3 on the second line after the zero.
6. Next, multiply 502 by the 3 in the hundreds place of 336. Similar to the previous step, add two zeros on the next line below 15,060 (in the ones and tens place values). We add

```
    __4__  __7__  __2__
X __ 2___  __1_  __9__
---------------------------------
    4    1    4    8
    4    7    2
9   4    4
---------------------------------
1   0  3    3    6    8
```

5. Provide some additional sample practice for pupils. Then divide the class into two teams or arrange students into pairs.
6. Pupils take turns solving problems; while one pupil solves the problem by hand the other can use a calculator (or an online calculator) to check those calculations.

Guided Practice

Day 3/ Lesson 3: 15mins

1. The box model: A model in multiplication that uses boxes (place value) along the length and width of a rectangle to represent the factors.
2. The problem is 136 × 221; decompose, or break apart, the numbers and label the outside of the box.

100	30	6	
20000	6000	1200	200
2000	600	120	20
100	30	6	1

22,100 + 6,630 + 1326 = 30,056

3. 136 × 221 = 30,056

two zeros in this step since we are multiplying 502 by 300.

7. Now, multiply 502 by 3, adding those values after the two zeros we just placed.
8. Finally, add up the values found from multiplying the different numbers in the ones, tens, and hundreds place value.
9. After adding up all the values, we reach our final answer: 168,672.

Assessment Activity

Assess if pupils can:

1. Solve problems involving multiplication of 3-digit number correctly.

Summary

1. As the problems are reviewed in front of the class, have the pupils check their answer.

Assessment Activity

Pupils need to be familiar with multiplying 3-digit by 3-digit number. Have them practice these problems to gain a better grasp of the concepts used to complete them.