

DIVISION OF WHOLE NUMBERS BY 2-DIGIT AND 3-DIGIT NUMBERS

3.20.2019

Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Dividing numbers up to 4 digits by a two-digit and 3-digit whole number using the formal written method where appropriate, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

Objectives

Students should be able to;

1. Complete multi-digit division problems.
2. Attend to the role of place value in division.
3. Demonstrate, by solving an equation, how to find the quotient of a division problem with a two digit and 3-digit divisor and a four digit dividend.

Activity Starter/Instruction

1. Teacher can do this activity with a book order box. Teacher write a 4 digit number and "books" on the box, and set up a situation like the following:
2. "We just received a huge shipment of books for 100 teachers to share. Pretend they all fit in this box (holding up the Scholastic box). Won't the teachers be so excited to get their hands on these new books?!"
3. It's our job to figure out how many books each teacher will get! How would you start to "divide out" these books?"
4. As pupils give suggestions for "partial" quotients or groups of numbers of books to give to each teacher, teacher writes their on the whiteboard.

Teacher Guide

Day 1/ Lesson 1: 20Mins

1. Teacher says to divide a four-digit number by a two-digit number (for example $3654 \div 47$) pupils need to follow the below steps.
2. Place the divisor (47) before the division bracket and place the dividend (3654) under it.

$$\begin{array}{r} 47 \overline{) 3654} \end{array}$$

3. Examine the first two digits of the dividend (36). The number 36 is less than 47 so it can't be divide by 47 to produce a whole number. Next take the first three digits of the dividend (365) and determine how many 47's it contains. The number 365 contains seven 47's ($7 \times 47 = 329$). Place the 7 above the division bracket.

$$\begin{array}{r} 7 \\ 47 \overline{) 3654} \\ \underline{329} \end{array}$$

4. Draw a line under the 329 and subtract it from 365 ($365 - 329 = 36$). Bring down the 4 from 3654 and place it to the right of the 6 in 36.

Materials Required

- White board
- Marker
- Box order box
- Game card
- Game board

Additional Resources

- <https://www.theschoolrun.com/what-is-long-division>
- <https://www.wikihow.com/Do-Short-Division>
- <https://www.homeschoolmath.net/teaching/md/two>
- <https://www.prodigygame.com/blog/how-to-do-long>
-

Additional Notes

Guided Practice

Day 2/ Lesson 2: 15Mins

1. $3,1800 \div 15$ teacher shows pupils a smart rounding ~
 $3,0000 \div 150$, smart estimate ~ 20

2. $3,1800 \div 150$

$$\begin{array}{r} 150 \overline{) 3,1800} \\ - 3,0000 \quad (150 \times 200) \\ \hline \end{array}$$

$$\begin{array}{r} 1800 \\ - 1500 \quad (150 \times 10) \\ \hline \end{array}$$

$$\begin{array}{r} 300 \\ 300 \quad (150 \times 2) \\ \hline \end{array}$$

0

3. $200 + 10 + 2 = 212$

$$212 \times 150 = 31,800$$

$$31,800 \div 150 = 212$$

4. This makes sense since our smart estimate was 200.

Guided Practice

Day 3/ Lesson 3: 20mins

1. Decide who plays first. Player with the shortest name starts. Decide how long the game will last. Set a timer if necessary.
2. The first player draws a card, reads the division problem and calls out the answer.
3. The other player uses the calculator to check Player 1's answer. If his answer is correct, Player 1 draws a line segment on the game board. If the answer is incorrect, he does not draw a line and his turn is over.
4. Player 2 takes a turn using the same method. Continue to play.
5. The player who draws a line that finishes a 4-sided box writes his initials in that box. When a player completes a box, he also gets to draw an extra line on the game board.
6. At the end of playing time, players calculate their score. Each box with initials is worth 3 point. The player with the most points wins.

$$\begin{array}{r} 7 \\ 47 \overline{) 3654} \\ \underline{329} \\ 364 \end{array}$$

5. Divide 364 by 47 and place that answer above the division bracket to the right of the 7.

$$\begin{array}{r} 77 \\ 47 \overline{) 3654} \\ \underline{329} \\ 364 \\ 329 \end{array}$$

6. Subtract 329 from 364 to get an answer of 35. The number 35 is smaller than 45 so it is called the "remainder" and indicates that there were 35 left over.

$$\begin{array}{r} 77 \text{ R}35 \\ 47 \overline{) 3654} \\ \underline{329} \\ 364 \\ \underline{329} \\ 35 \end{array}$$

7. $3654 \div 47 = 77 \text{ R}35$

Summary 1. Pupils should be allowed to provide solutions to the activities carried out in class.		Assessment Activity Assess if students can; 1. Divide whole numbers by 2-digit and 3-digit numbers correctly.