

Grid Method TASK CARDS

support for long division


2 and 3 digit dividends; 1-digit divisors
some remainders

3

6	5	2
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Solve the problem using the grid method.

There are 8 chocolate chips in each cookie. If there are 256 chocolate chips altogether, how many cookies are there?



3

$\frac{\square}{-0}$	$\frac{\square}{21}$	$\frac{\square}{12}$
2	1	0

Write a story problem to accompany this equation. Then solve it using the grid method.

$97 \div 2$

This equation has been solved using the grid method, but there is an error! Can you find it? Identify the error and make the necessary corrections.

4

1	5	9
$\frac{6}{-4}$	$\frac{3}{-20}$	$\frac{2}{-32}$
2	3	0

$632 \div 4 = 159$

Solve the problem using the grid method.

Predict: Which equation will have a higher quotient? Then solve each equation using the grid method to see if you were right.

$87 \div 3$

$135 \div 2$

Each dancer takes 3 minutes to do her routine of the recital. The entire recital is 78 minutes. The speech at the beginning of the recital takes 6 minutes. How many dancers dance at the recital?

Solve this equation using the grid method.

4

6	2	3
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Solve the problem using the grid method.

There are 198 kids at the hockey tournament. There are 9 kids on each team. How many teams are there altogether?

Predict: Will this equation have a remainder? Then solve it using the grid method to find out.

The dividend is missing from this equation. Can you figure out what it is? How did you figure it out?

5

1	2	4
$\frac{\square}{-4}$	$\frac{\square}{2}$	$\frac{\square}{5}$
0	2	4

This equation has been solved in two different ways. The first uses the grid method. The second uses partial quotients. Explain which way you prefer and why.

$2 \overline{) 425}$

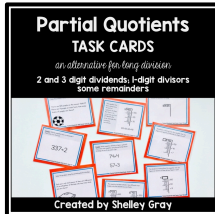
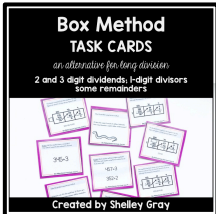
$2 \overline{) 425}$

Created by Shelley Gray

The Grid Method: An Introduction to Traditional Long Division

The Grid Method is intended for those who plan to teach traditional long division. The Grid Method follows the same steps as traditional long division, but uses a different method of organization. This may make traditional long division easier for your students.

The Grid Method is not a mental math based approach. If you are looking for a mental math approach to long division, be sure to check out these task cards for the Box/Area Method and Partial Quotients.



The grid method involves organizing the numbers in a grid, and then following a series of steps.

Let's take a look at how we perform the grid method. I have also included a video link on the next page.

Suppose that we want to solve the equation $576 \div 3$.

3	5	7	6
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← First of all we organize our equation into a grid. Each digit of the dividend is written in one section of the grid, and the divisor is on the left side. Now we can begin!

	1	9	2
3	5 - 3 — 2	27 - 27 — 0	06 - 6 — 0

← First we ask, "How many times can 3 go into 5?" It can go 1 time, so we write the one on top, multiply 1×3 to make 3, and then take that 3 away from the 5. We have 2 left over. We carry the 2 to the tens place of the next section, and ask how many times 3 goes into 27.

3 goes into 27 9 times, so we write a 9 on top, multiply 9×3 to make 27, and take that 27 away from 27 to make 0. We can carry the 0 to the tens place of the next section.

3 goes into 6 two times, so we write a 2 on top and complete our multiplication and subtraction to make 0. Our quotient is 192.

Here's one more example. In this example you'll notice that we have a remainder left at the end. Let's solve $345 \div 2$. First we set up our equation in a grid. Each digit of the dividend (345) is written in a different section in the grid, and the divisor is written on the left side.

We know that 2 can go into 3 one time, so we write a 1 on top. $1 \times 2 = 2$, so we subtract 2 from 3 to make 1. We carry the 1 to the tens place of the next section.

We know that 2 goes into 14 seven times, so we write a 7 on top. $7 \times 2 = 14$, so we subtract 14 from the 14 and are left with 0. We can carry the 0 to the tens place of the next section.

We know that 2 goes into 5 two times, so we write a 2 on top. $2 \times 2 = 4$, so we subtract 4 from the 5 and are left with 1. This becomes our remainder.

	1	7	2
2	$\begin{array}{r} 3 \\ -2 \\ \hline 1 \end{array}$	$\begin{array}{r} 14 \\ -14 \\ \hline 0 \end{array}$	$\begin{array}{r} 05 \\ -4 \\ \hline 1 \end{array}$

To find the quotient, write the digits from the top and then add our remainder. So $345 \div 2 = 172 \text{ R}1$.




Here is a link to a video that I've made about the Partial Quotients Method for division. Please watch this to familiarize yourself with this method.

<https://www.youtube.com/watch?v=IHKIPJ7y9ow>

THE
LONG DIVISION
STATION

A
SELF-PACED, STRATEGIC,
STUDENT-CENTERED
program for
long division



BY SHELLEY GRAY

Are you looking for even more support with teaching long division in your classroom? You might be interested in this self-paced, student-centered Long Division Station that will allow your students to move through all of these strategies and approaches at their own pace. That station can be found here:

<https://www.teacherspayteachers.com/Product/The-Long-Division-Station-self-paced-student-centered-3552960>

This resource includes...

Detailed explanations of the grid method strategy, as well as a link to a helpful video

A grid method strategy poster to display in your classroom:

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The grid method involves organizing the numbers in a grid, and then following a series of steps.

Let's take a look at how we perform the grid method. I have also included a video link on the next page.

Suppose that we want to solve the equation $576 \div 3$

3	5	7	6

First of all we organize our equation into a grid. Each digit of the dividend is written in one section of the grid and the divisor is on the left side. How do we begin?

3	5	7	6
-			
2			

First we ask, "How many times can 3 go into 5?" 3 can go 1 time, so we write the one on top, multiply it to make 3, and then take that 3 away from the 5. We have 2 left over. We carry the 2 to the tens place of the next section and ask how many times 3 goes into 27?

3	5	7	6
-	3		
	2		

3 goes into 27 three times, so we write a 3 on top, multiply 3 to make 27 and take that 27 away from 27 to make 0. We can carry the 0 to the tens place of the next section.

3	5	7	6
-	3	21	
	2	0	

3 goes into 6 two times, so we write a 2 on top and complete our multiplication and subtraction to make 0. Our quotient is 192.

Here's one more example. In this example you'll notice that we have a remainder left at the end. Let's solve $345 \div 2$. First we set up our equation in a grid. Each digit of the dividend (345) is written in a different section in the grid, and the divisor is written on the left side.

We know that 2 goes into 3 once time, so we write a 1 on top. We multiply 2 to make 2, and then take that 2 away from the 3 to get 1. We carry the 1 to the tens place of the next section.

We know that 2 goes into 14 seven times, so we write a 7 on top. We multiply 2 to make 14, and then take that 14 away from the 14 to get 0. We carry the 0 to the tens place of the next section.

We know that 2 goes into 5 two times, so we write a 2 on top. We multiply 2 to make 4, and then take that 4 away from the 5 to get 1. This becomes our remainder. So, $345 \div 2 = 172 R1$.

To find the quotient, write the digits from the top and then add our remainder. So, $345 \div 2 = 172 R1$.

Here is a link to a video that I've made about the Grid Method for division. Please watch this to familiarize yourself with this method.

<https://www.youtube.com/watch?v=0KnS-UHMZGU8+23s>

Are you looking for even more support with teaching long division in your classroom? You might be interested in this self-paced, student-centered Long Division Station that will allow your students to move through all of these strategies and approaches at their own pace. That station can be found here: <https://www.teacherspayteachers.com/Product/The-Long-Division-Station-a-self-paced-student-center-and-9592962>

THE GRID METHOD for division

621 ÷ 3

2	0	7
6	02	21
-	-	-
0	2	21
		0

Twenty-four task cards that practice the grid method in a variety of different ways

Solve the problem using the grid method.

Mrs. Tony is sorting the blocks into bags for her students. She has 576 blocks and wants to put 3 blocks in each bag. How many bags will she have in all?

3	5	7	6
-			
2			

478 ÷ 5

692 ÷ 5

98 ÷ 3

Solve the problem using the grid method.

Each soccer team takes 3 minutes to do ten minutes of the match. The entire match is 78 minutes. How many soccer teams are there in all?

3	4	5	9
-			
2			

632 ÷ 4 = 158

59 ÷ 3

87 ÷ 3

135 ÷ 2

Explain in words how you could solve this equation using the grid method (62 ÷ 2).

3	6	5	2

425 ÷ 2 = 212 R1

97 ÷ 2

The dividend is missing from this equation. Can you figure out what it is?

3	0	7	4
-			
2			

Which equation will have a higher quotient? Then solve each equation using the grid method to see if you were right.

474 ÷ 4

245 ÷ 3

827 ÷ 5 = 165 R2

Which equation will have a higher quotient? Then solve it using the grid method to find out.

346 ÷ 5

136 ÷ 2

95 ÷ 4

134 ÷ 3

Recording sheets to help your students stay organized

RECORDING SHEET Case #1 Solve the problem. Write an answer sentence.	Case #2 Identify the error and make corrections. Describe the error.
Case #3 Make your prediction. Solve it.	Case #4 Solve the problem. Write the answer.
Case #5 Were you right?	Case #6 Make your prediction. Solve the equation.
Case #7 Make your prediction. Solve the equation.	Case #8 Figure out the missing divisor. How did you figure it out?
Were you right?	Were you right?

Case #1 Solve the problem. Write the answer.	Case #2 Identify the error and make corrections. Describe the error.
Case #3 Make your prediction. Solve it.	Case #4 Solve the problem. Write the answer sentence.
Case #5 Were you right?	Case #6 Make your prediction. Solve the equation.
Case #7 Make your prediction. Solve the equation.	Case #8 Figure out the missing dividend. How did you figure it out?
Were you right?	Were you right?

Case #9 Evaluation. Write the answer.	Case #10 Write a story problem. Solve it.
Case #11 Solve the problem. Write the answer.	Case #12 Make your prediction. Solve the equation.
Case #13 Figure out the missing dividend. How did you figure it out?	Case #14 Make your prediction. Solve the equation.
Were you right?	Were you right?

Case #11 Make your prediction. Solve the equation.	Case #12 Identify the error and make the corrections. Describe the error.
Case #13 Make your prediction. Solve the equation.	Case #14 Make your prediction. Solve the equation.
Case #15 Make your prediction. Solve the equation.	Case #16 Make your prediction. Solve the equation.
Were you right?	Were you right?

Answer keys to make self-checking a breeze!

ANSWER KEY Case #1 Solve the problem. Write an answer sentence. She will have 36 legs in all.	Case #2 Identify the error and make corrections. Describe the error. 47+3=57
Case #3 Make your prediction. Answers will vary.	Case #4 Solve the problem. Write the answer. There will be 14 groups of geese.
Case #5 Solve it. Were you right? There IS a remainder.	Case #6 Make your prediction. Answers will vary.
Case #7 Make your prediction. Answers will vary.	Case #8 Figure out the missing divisor. How did you figure it out? Answers will vary.

Case #1 Solve the problem. 78-6=72 Write the answer. There are 24 dancers at the recital.	Case #2 Identify the error and make corrections. Describe the error. 632+4=638
Case #3 Make your prediction. Answers will vary.	Case #4 Solve the problem. Write the answer. There IS a remainder.
Case #5 Make your prediction. Answers will vary.	Case #6 Make your prediction. Answers will vary.
Case #7 Make your prediction. Answers will vary.	Case #8 Figure out the missing dividend. How did you figure it out? Answers will vary.

Case #9 Evaluation. 3 goes into 62 times, so write 2 in the top. Multiply 2x3 to make 6 and subtract that from 6. 3 goes into 11 times, so write 4. Multiply 4x3 to make 12, and take that away from 11 to make 2. Carry the 2 over to the next space on the grid. 3 goes into 27 9 times, so write 9. 3x9=27. There is no remainder left. Write the answer. There are 32 cookies.	Case #10 Write a story problem. Answers will vary.
Case #11 Solve the problem. Write the answer. There are 32 cookies.	Case #12 Make your prediction. Answers will vary.
Case #13 Figure out the missing dividend. How did you figure it out? Answers will vary.	Case #14 Make your prediction. Answers will vary.

Case #11 Make your prediction. Answers will vary.	Case #12 Identify the error and make the corrections. Describe the error. 827-6=837 K5
Case #13 Make your prediction. Answers will vary.	Case #14 Make your prediction. Answers will vary.
Case #15 Make your prediction. Answers will vary.	Case #16 Make your prediction. Answers will vary.
Case #17 Make your prediction. Answers will vary.	Case #18 Make your prediction. Answers will vary.
Were you right?	Were you right?