

Long Division and Multiplication Grid

Use our poster-style Long Division and Multiplication Grid to visualize big-number problems—an easy, reusable tool that helps students practice and build confidence step by step.

Materials needed for the long division and multiplication grid:

- Printout
- White board markers
- Tissue/white board eraser

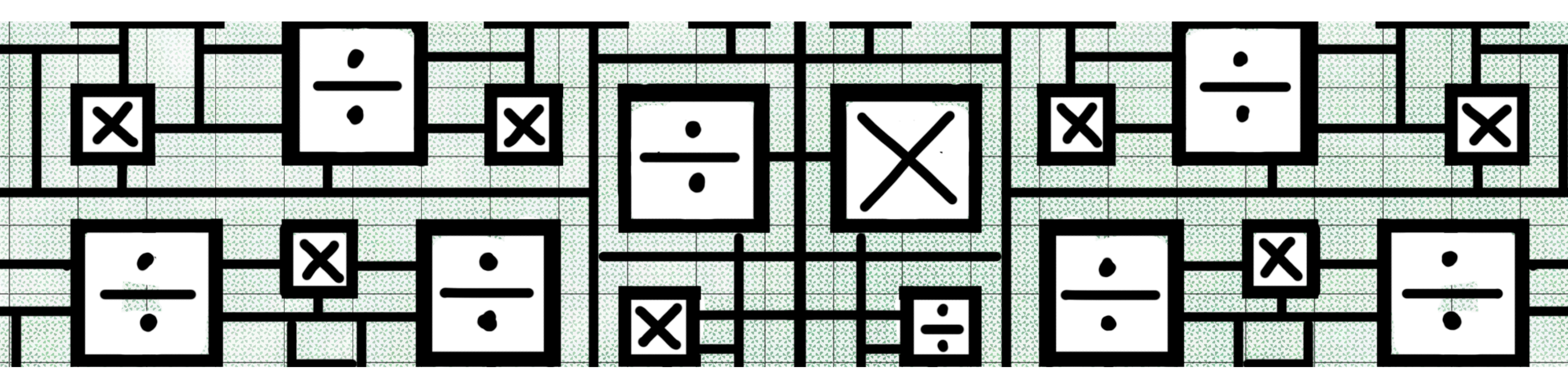
Reusable Methods and materials needed:

Speak with your parents to select one of the following methods.

- If you don't have access to lamination techniques you can use any writing surface and our printout as a template:
 - Use the printout and grid guide to learn the method.
- Using a laminator makes the pieces durable and reusable:
 - This can be done at your local print shop.
 - Use dry erase markers and a tissue for your laminated project.
- DIY Lamination at home:
 - Lamination sleeves/clear freezer Bags/ziploc bags.
 - Make sure the size of the sleeve can fit the grid template and is thicker than a file sleeve.
 - Parchment paper/baking sheets (front and back of the plastic)
 - Iron (with no water/steam off on a medium heat)
 - Ironing board.
 - Use dry erase markers and a tissue for your laminated project.

Grid Method Guide:

- Write out your sum you are trying to work out
- In the grid use colored markers or symbols or that represent each of the digit blocks when practicing your multiplication and long Division sums



Multiplication method:

- Write down the smallest number first of the numbers from your multiplication sum—leaving plenty of space for your working area.
- If there is a zero, skip the column as any number multiplied by zero = zero but be aware of where the zero is in the number.
- Use the first column under each digit symbol to write out the second number in the multiplication sum into the digit symbols.
 - Remember to increase the digit values by 10 before you write in your symbols.
- When this is written out we can simplify our work:
 - Add each group of 10 of the same symbols -
 - use a long line to slash the symbols out and replace with one symbol of the next highest digit value.
 - For example: ten 10 digit symbols becomes one 1000 digit symbol.
- When you are done simplifying your work, write out the symbols you have left over to find your answer.
- You can double check by adding and counting them together to ensure your simplifications are correct.

Multiplication Grid example:

Write your sum out here:

$$1.) 152 \times 30$$

Fill the Digit Symbol Blocks with colors/symbols/stickers to help you work out division and multiplication sums:

★	△	♥	●	○
10 000	1000	100	10	1

Write your sum out here:

$$1.) = 4560$$

	100	50	20	
100	△	△	△	ZERO
50	♥	♥	♥	ZERO
20	●	●	●	ZERO

4000 + 500 + 60

Write your sum out here:

$$2.) 348 \times 27$$

Fill the Digit Symbol Blocks with colors/symbols/stickers to help you work out division and multiplication sums:

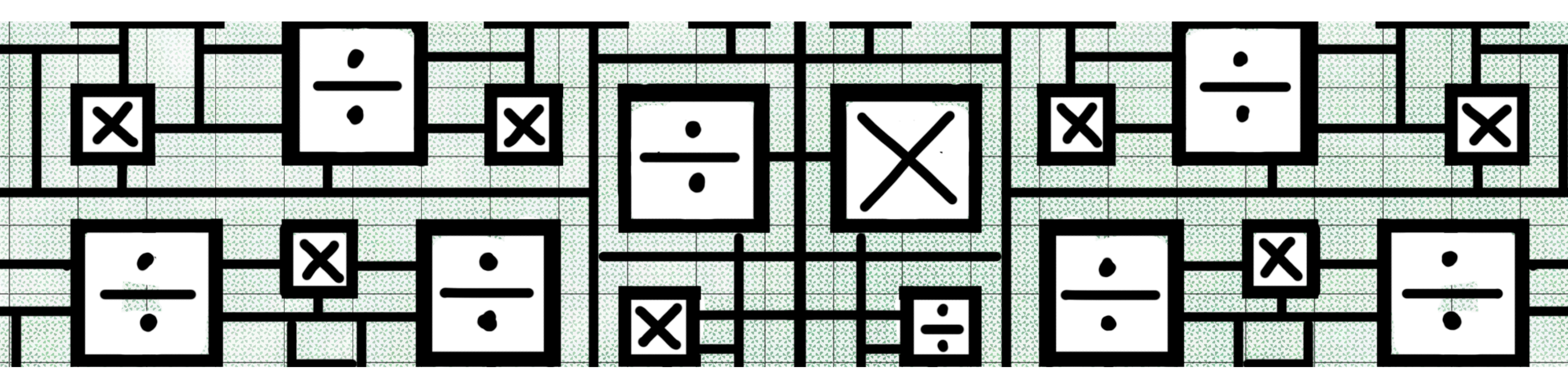
★	△	♥	●	○
10 000	1000	100	10	1

Write your sum out here:

$$2.) = 10746$$

	2	7						
300	●	●	●	●	●	●	●	●
90	♥	♥	♥	♥	♥	♥	♥	♥
6	●	●	●	●	●	●	●	●

9000 + 1000 + 700 + 40 + 6



Long Division:

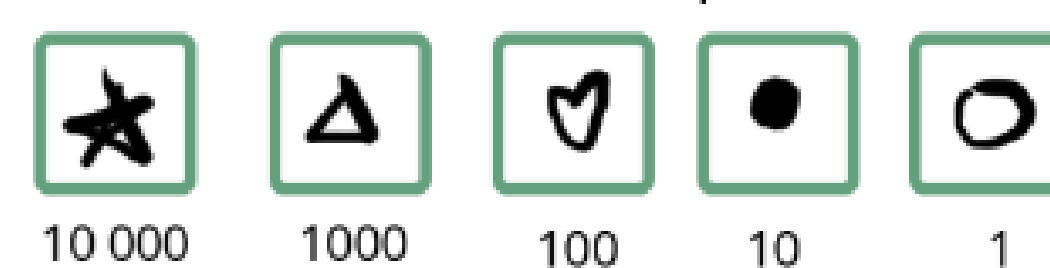
- Write down your divisor to leave plenty of space for your working area.
- Break down the divisor into your digit symbols into each block of the grid.
- If there is a zero skip the column as any number multiplied by zero = zero
- Write down your Dividend on the other side of the page.
- Break down the dividend into your digit symbols.
- Share all dividend digit symbols from biggest to lowest one row at a time under each column of the divisor:
 - To start a row, cross out the highest value digit symbol in your dividend and “copy” into the first row column.
 - For the next column in the same row choose the next lowest digit value symbol.
 - The digit symbols for the divisor and dividend represent multiples of 10 so each column based on the digits symbols value must be 10 times more or less.
 - If your next row is in the same value as the previous digit symbol used, that same symbol can apply.
- Cross out the dividend digit symbols you used as you work through each row of digit symbols while sharing these symbols.
 - If you cannot share a dividend digit evenly while still having plenty of digit symbols left over to share.
 - Make a single slash on the left over dividend digit symbol.
 - Add 10 of the next lower digit symbols .
 - Use brackets and arrows to help you separate these numbers for reference, i.e. a one 100 digit symbol with a single slash can be converted to ten [10 digit symbols].
- Repeat until all the digit symbols are slashed or crossed out and written under the divisor.
- To check your work, see if all the symbols that are not slashed are added up evenly between the dividend group and the divisor group.
- To get the final answer, look at the last 1 digit symbol column b and tally up your digit symbols as the 10 digit symbol is 10 times more.

Long division Grid examples:

Write your sum out here:

1.) $3924 \div 12$

Fill the Digit Symbol Blocks with colors/symbols/stickers to help you work out division and multiplication sums:



1.) = 327

The grid shows the following content:

1	2	=	10	+	1	+	1	← Divisor
•	○	○						
△	♥	♥	A					
△	♥	♥	B	300				
△	♥	♥	C	+				
♥	●	●	D					
♥	●	●	E	20				
●	○	○	F	+				
●	○	○	G					
●	○	○	H	7				
●	○	○	I					
●	○	○	J					
●	○	○	K					
●	○	○	L					
Answer →								
3	9	2	4					← Dividend

The grid is marked with various symbols and colors to indicate the correct answer:

- The digit '3' is marked with a red 'X' and a red arrow pointing to it from the right.
- The digit '2' is marked with a blue 'X' and a blue arrow pointing to it from the right.
- The digit '7' is marked with a green 'X' and a green arrow pointing to it from the right.
- The digit '4' is marked with a blue 'X' and a blue arrow pointing to it from the right.
- The digit '3' is marked with a red 'X' and a red arrow pointing to it from the right.
- The digit '9' is marked with a red 'X' and a red arrow pointing to it from the right.
- The digit '2' is marked with a blue 'X' and a blue arrow pointing to it from the right.
- The digit '4' is marked with a blue 'X' and a blue arrow pointing to it from the right.

Write your sum out here:

$$2.) 2340 \div 3$$

$2.) = 780$

The figure shows a handwritten base-3 multiplication problem on a grid background. At the top, there are three symbols: a division sign (\div), three vertical dots, and a multiplication sign (\times). The main calculation is:

$$\begin{array}{r} 700 \\ + \quad 80 \\ \hline 780 \end{array}$$

The numbers are written in base 3. To the right of the numbers, the digits are labeled A through O, each preceded by a colored heart symbol corresponding to its color in the original image.

Below the numbers, there are two rows of boxes representing the base-3 digits of the result:

+	Zero	2	3	4	0

Annotations include:

- A red arrow pointing to the "Divisor" label next to the number 3.
- A green bracket around the last two columns of the result row, with a green checkmark and the word "Dividend" written below it.
- An orange bracket around the first two columns of the result row, with an orange arrow pointing to the "Zero" column.
- A purple asterisk (*) is placed near the digit 4 in the result row.