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Developing Mathematical Thinking Institute (DMTI)



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# Grades 3, 4, and 5: Multiplication Fluency Part 2

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DMTI VARIED PRACTICE

# DMTI Varied Practice Worksheets

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This PowerPoint or PDF displays the worksheets that have varied situations (context, visual, equations, and other mathematical models) for children to work on. By completing these worksheets, children increase their foundational skills in the topic, which will help them with these standards and future mathematical topics.

1. If using a journal, have children present the worksheet and complete all the problems.
2. Or print the 'Varied Practice Worksheet Slides' for them to work on. Then, you can return to the PowerPoint or PDF to look at the keys to check their work.

# Grades 3-5: Multiplication Fluency – Part 2

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## Materials Needed

Printed copies of the Multiples of \_\_\_\_ Worksheets and the Guiding Questions.

## Instructions

You will be given two ratio tables to complete.

The **first table** will list a number to multiply by and should be completed by listing all of the multiples of that number up to the product of the number multiplied by 12.

After completing the first table, look for patterns using the **guiding questions** provided.

The **second table** will have different parts missing and will not necessarily be in order. You will have to fill in the missing parts of the table. Look for patterns to fill in the table.

The Multiples of \_\_\_\_ Worksheets are presented in sequence from easiest to most difficult. Follow any sequence you prefer.

*An example is provided on the next page for the multiples of 6, up to  $12 \times 6 = 72$ .*

# Example: Ratio Tables and Patterns

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This is a completed ratio table for some of the multiples of 6. The table lists the products of  $1 \times 6$  all the way to  $12 \times 6$ . Some of the answers to **the Guiding Questions** may vary.

1	2	3	4	5	6	7	8	9	10	11	12
6	12	18	24	30	36	42	48	54	60	66	72

## Guiding Questions:

What patterns do you notice if you look at the digit in the ones place for each product?

*The digit in the ones' place follows this sequence: 6, 2, 8, 4, 0 and then repeats 6, 2, 8, 4, 0.*

What patterns do you notice if you look at the digit in the tens place for each product?

*If you include  $0 \times 6 = 0$ , the tens' digit follows this sequence: 0, 0, 1, 1, 2, 3, 3, 4, 4, 5, 6, 6, 7, 7...*

*There are two pairs of digits that are the same and then one digit that does not have a pair.*

What patterns do you see, if any, for odd and even products or factors?

*All of the products are even because 6 is an even factor.*

How are the top and bottom rows of the table related?

*The bottom of the table is always the top number multiplied by 6.*

What patterns in the products could help you predict the next 2, 3, 4, etc. products?

*The pattern with the tens' digit could help predict the next several products (or multiples).*

# Guiding Questions

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Use these questions to help you look for patterns after you complete the ratio table that lists all of the multiples in order.

1. What patterns do you notice if you look at the digit in the ones' place for each product?
2. What patterns do you notice if you look at the digit in the tens' place for each product?
3. What patterns, if any, do you notice for odd and even products or factors?
4. How are the top and bottom rows of the table related?
5. What patterns in the products could help you predict the next 2, 3, 4, etc. products?

# Multiples of 2

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6									

Table 2: Fill in the missing parts of the table.

1	2		5	10	11			3	9	8	7
2	4	8				24	12				

# Multiples of 5

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
5	10	15									

Table 2: Fill in the missing parts of the table.

1	2		10	12		6	7	8	9		
5		25			55					15	20



# Multiples of 10

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
10	20	30									

Table 2: Fill in the missing parts of the table.

1			2	4	6	8				8	9
10	50	100					30	110	120		

# Multiples of 3

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
3	6	9	12	15	18	21	24	27	30	33	36

Table 2: Fill in the missing parts of the table.

1	5	10	2	12	6	3	9	8	7	4	11
3	15	30	6	36	18	9	27	24	21	12	33

# Multiples of 4

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
4	8	12									

Table 2: Fill in the missing parts of the table.

1	2	4	8		12	11	5	6	7		9
4				40						12	

# Multiples of 6

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
6	12	18									

Table 2: Fill in the missing parts of the table.

1				6	5	10	11	12			
6	12	24	48						18	42	54

# Multiples of 8

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
8	16	24									

Table 2: Fill in the missing parts of the table.

1	10	11	9			7	6		4	12	
8				40	16			24			64

# Multiples of 9

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
9	18	27									

Table 2: Fill in the missing parts of the table.

1				6	3		7	5			2
9	90	99	108			36			72	81	

# Multiples of 7

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
7	14	21									

Table 2: Fill in the missing parts of the table.

1	2	4	6	8		9			3	5	7
7					70		77	84			



“The Developing Mathematical Thinking Institute (DMTI) is dedicated to enhancing students’ learning of mathematics by supporting educators in the implementation of research-based instructional strategies through high-quality professional development, curricular resources and assessments.”

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# Multiples of 2 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24

Table 2: Fill in the missing parts of the table.

1	2	4	5	10	11	12	6	3	9	8	7
2	4	8	10	20	22	24	12	6	18	16	14

# Multiples of 5 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
5	10	15	20	25	30	35	40	45	50	55	60

Table 2: Fill in the missing parts of the table.

1	2	5	10	12	11	6	7	8	9	3	4
5	10	25	50	60	55	30	35	40	45	15	20

# Multiples of 10 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
10	20	30	40	50	60	70	80	90	100	110	120

Table 2: Fill in the missing parts of the table.

1	5	10	2	4	6	8	3	11	12	8	9
10	50	100	20	40	60	80	30	110	120	80	90

# Multiples of 3 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
3	6	9	12	15	18	21	24	27	30	33	36

Table 2: Fill in the missing parts of the table.

1	5	10	2	12	6	3	9	8	7	4	11
3	15	30	6	36	18	9	27	24	21	12	33

# Multiples of 4 - KEY

---

Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
4	8	12	16	20	24	28	32	36	40	44	48

Table 2: Fill in the missing parts of the table.

1	2	4	8	10	12	11	5	6	7	3	9
4	8	16	32	40	48	44	20	24	28	12	36

# Multiples of 6 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
6	12	18	24	30	36	42	48	54	60	66	72

Table 2: Fill in the missing parts of the table.

1	2	4	8	6	5	10	11	12	3	7	9
6	12	24	48	36	30	60	66	72	18	42	54

# Multiples of 8 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
8	16	24	32	40	48	56	64	72	80	88	96

Table 2: Fill in the missing parts of the table.

1	10	11	9	5	2	7	6	3	4	12	8
8	80	88	72	40	16	56	48	24	32	96	64

# Multiples of 9 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
9	18	27	36	45	54	63	72	81	90	99	108

Table 2: Fill in the missing parts of the table.

1	10	11	12	6	3	4	7	5	8	9	2
9	90	99	108	54	27	36	63	45	72	81	18



# Multiples of 7 - KEY

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Table 1: Complete the table by listing the multiples (or products) in order.

1	2	3	4	5	6	7	8	9	10	11	12
7	14	21	28	35	42	49	56	63	70	77	84

Table 2: Fill in the missing parts of the table.

1	2	4	6	8	10	9	11	12	3	5	7
7	14	28	42	56	70	63	77	84	21	35	49