

Multiplication Drills

Grades 4-6

Written by Nancy Wilson
Illustrated by S&S Learning Materials

ISBN 1-55035-739-5
Copyright 2004
Revised April 2006
All Rights Reserved * Printed in Canada

Permission to Reproduce

Permission is granted to the individual teacher who purchases one copy of this book to reproduce the student activity material for use in his/her classroom only. Reproduction of these materials for an entire school or for a school system, or for other colleagues or for commercial sale is **strictly prohibited**. No part of this publication may be transmitted in any form or by any means, electronic, mechanical, recording or otherwise without the prior written permission of the publisher. "We acknowledge the financial support of the Government of Canada through the Book Publishing Industry Development Program (BPIDP) for this project."

Published in the United States by:
On The Mark Press
3909 Witmer Road PMB 175
Niagara Falls, New York
14305
www.onthemarkpress.com

© On The Mark Press • S&S Learning Materials

Published in Canada by:
S&S Learning Materials
15 Dairy Avenue
Napane, Ontario
K7R 1M4
www.sslearning.com

OTM-1130 • SSK1-30 Multiplication Drills

Two Methods for Mastering Multiple-Digit Multiplication

1. Traditional Method (with 2- and 3-Digit Factors)

Multiplication with multiple-digit numbers involves the three steps of multiplying, carrying and adding. In the traditional method of multiplication, these steps are combined which demands flexibility in higher-level thinking.

Example: $634 \times 25 = ?$

Begin by multiplying the ones value (5) of the 2-digit factor (25) with the ones value (4) of the 3-digit factor (634). Repeat this step by multiplying the 5 with the *tens* value (3), and then by the *hundreds* value (6) of the 3-digit factor. Whenever the product of each of these steps is more than a single digit, be sure to carry the tens value [see calculation a)]. Then repeat all of a), this time multiplying the tens value (2) of the 2-digit factor (25) by the ones, tens and hundreds values respectively of the 3-digit factor [calculation b)]. Complete the problem by adding the partial products from a) and b) [calculation c)].

<p>a)</p> $\begin{array}{r} 12 \\ 634 \\ \times 25 \\ \hline 3170 \end{array}$ <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $5 \times 6 = 30,$ $30 + 1 = 31$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $5 \times 3 = 15,$ $15 + 2 = 17,$ Carry the 1 </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $5 \times 4 = 20,$ Carry the 2 </div> </div>	<p>b)</p> $\begin{array}{r} 634 \\ \times 25 \\ \hline 3170 \\ 1268 \end{array}$ <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 \times 6 = 12$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 \times 3 = 6$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 \times 4 = 8$ </div> </div>	<p>c)</p> $\begin{array}{r} 634 \\ \times 25 \\ \hline 3170 \\ 1268 \\ \hline 15850 \end{array}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> Add the partial products </div> <p style="text-align: center; margin-top: 10px;">Therefore $634 \times 25 = 15850$</p>
---	---	--

2. Lattice Method (with 2- and 3-Digit Factors)

This procedure allows students to solve a multiple-digit multiplication problem in smaller, more manageable steps than those required for the traditional method. The steps of multiplying, carrying and adding are done separately in this method, making the calculations easier to do. A grid or "lattice" is used as a framework, and each product that is calculated for the single-digit factors is recorded in a box within the lattice. In each box, the tens digit is recorded above the diagonal line and the ones digit is recorded below [see diagram a)].

Example: $634 \times 25 = ?$

Begin by drawing a grid of 3 columns by 2 rows, and write the numerals for the 3-digit factor across the top and the numerals for the 2-digit factor down the right side [diagram b)]. Now multiply each single digit of one factor with each single digit of the other factor, beginning with 4×2 . Partial products that are only one digit should be recorded with a zero in the tens place [calculations c) and d)]. Complete the problem by adding along the diagonals from right to left in order to find the final product. Any tens values that are "carried" are recorded outside the grid [calculation e)].

<p>a)</p> <div style="border: 1px solid black; padding: 5px; width: 80px; height: 80px; margin: 0 auto;"> <div style="position: relative; width: 100%; height: 100%;"> tens ones </div> </div>	<p>c)</p> <table style="margin: 0 auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">6</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">3</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">4</td> <td style="border: none;"></td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">1 2</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0 6</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0 8</td> <td style="border: none; text-align: center;">2</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">3 0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1 5</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">2 0</td> <td style="border: none; text-align: center;">5</td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 \times 6 = 12$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 \times 3 = 6$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 \times 4 = 8$ </div> </div>	6	3	4		1 2	0 6	0 8	2	3 0	1 5	2 0	5	<p>d)</p> <table style="margin: 0 auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">6</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">3</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">4</td> <td style="border: none;"></td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">1 2</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0 6</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0 8</td> <td style="border: none; text-align: center;">2</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">3 0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1 5</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">2 0</td> <td style="border: none; text-align: center;">5</td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $5 \times 6 = 30$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $5 \times 3 = 15$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $5 \times 4 = 20$ </div> </div>	6	3	4		1 2	0 6	0 8	2	3 0	1 5	2 0	5	<p>e)</p> <table style="margin: 0 auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">6</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">3</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">4</td> <td style="border: none;"></td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">1 2</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0 6</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0 8</td> <td style="border: none; text-align: center;">2</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">3 0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1 5</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">2 0</td> <td style="border: none; text-align: center;">5</td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $2 + 3 = 5$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $6 + 1 + 1 = 8$ </div> <div style="border: 1px solid black; padding: 5px; width: 30%;"> $8 + 2 + 5 = 15,$ Carry the 1 </div> </div> <p style="text-align: center; margin-top: 10px;">Therefore $634 \times 25 = 15850$</p>	6	3	4		1 2	0 6	0 8	2	3 0	1 5	2 0	5
6	3	4																																					
1 2	0 6	0 8	2																																				
3 0	1 5	2 0	5																																				
6	3	4																																					
1 2	0 6	0 8	2																																				
3 0	1 5	2 0	5																																				
6	3	4																																					
1 2	0 6	0 8	2																																				
3 0	1 5	2 0	5																																				



Name: _____

Skill:

Picture Multiplication

Start With

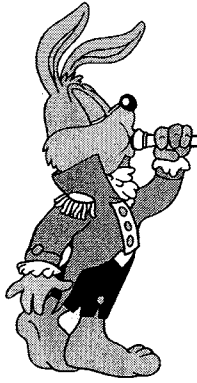
Multiply By

Equals

Number of Problems: 8

Number Correct: _____

Time to complete: _____ min.



Name: _____

Skill:

Multiplication x0

$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ \times 0 \\ \hline \end{array}$$

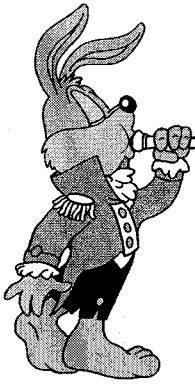
$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$$

Number of Problems: 30

Number Correct: _____

Time to complete: _____ min.



Name: _____

Skill:

Multiplication Review

$5 \times 3 = \underline{\quad}$

$8 \times 2 = \underline{\quad}$

$4 \times 1 = \underline{\quad}$

$7 \times 6 = \underline{\quad}$

$9 \times 8 = \underline{\quad}$

$2 \times 2 = \underline{\quad}$

$8 \times 7 = \underline{\quad}$

$9 \times 0 = \underline{\quad}$

$7 \times 2 = \underline{\quad}$

$10 \times 4 = \underline{\quad}$

$5 \times 7 = \underline{\quad}$

$2 \times 1 = \underline{\quad}$

$8 \times 3 = \underline{\quad}$

$12 \times 9 = \underline{\quad}$

$3 \times 6 = \underline{\quad}$

$11 \times 4 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$

$12 \times 5 = \underline{\quad}$

$12 \times 7 = \underline{\quad}$

$3 \times 7 = \underline{\quad}$

$2 \times 7 = \underline{\quad}$

$6 \times 9 = \underline{\quad}$

$7 \times 9 = \underline{\quad}$

$10 \times 9 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$

$2 \times 5 = \underline{\quad}$

$12 \times 3 = \underline{\quad}$

$7 \times 7 = \underline{\quad}$

$5 \times 9 = \underline{\quad}$

$11 \times 6 = \underline{\quad}$

$8 \times 5 = \underline{\quad}$

$3 \times 9 = \underline{\quad}$

$9 \times 9 = \underline{\quad}$

$11 \times 7 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$

$8 \times 2 = \underline{\quad}$

Number of Problems: 36

Number Correct: _____

Time to complete: _____ min.

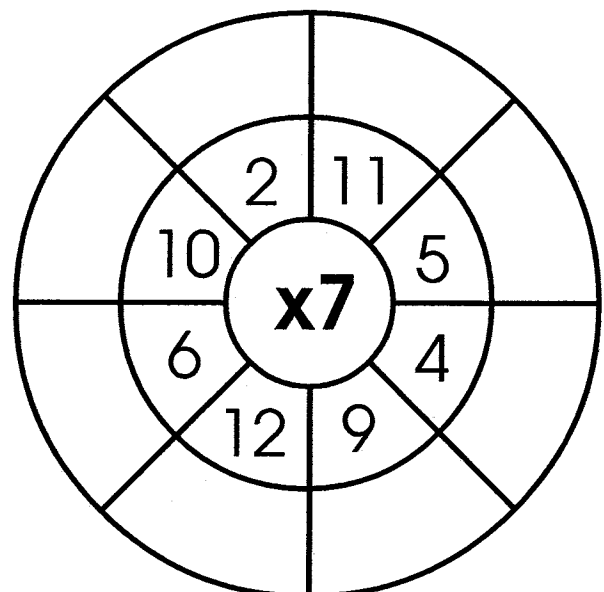
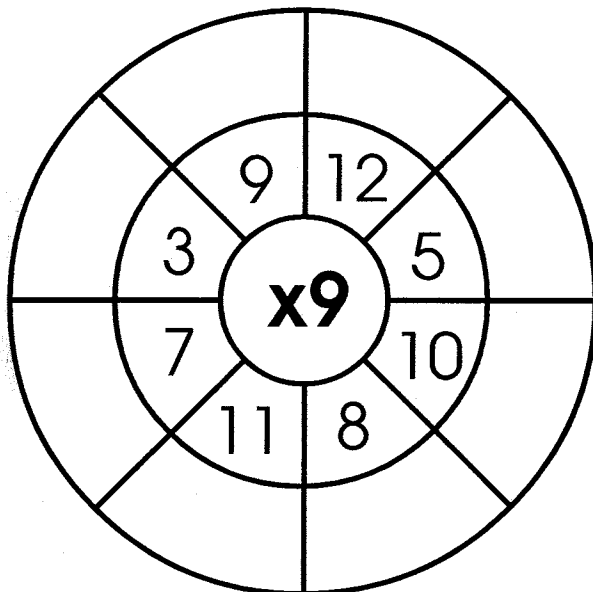
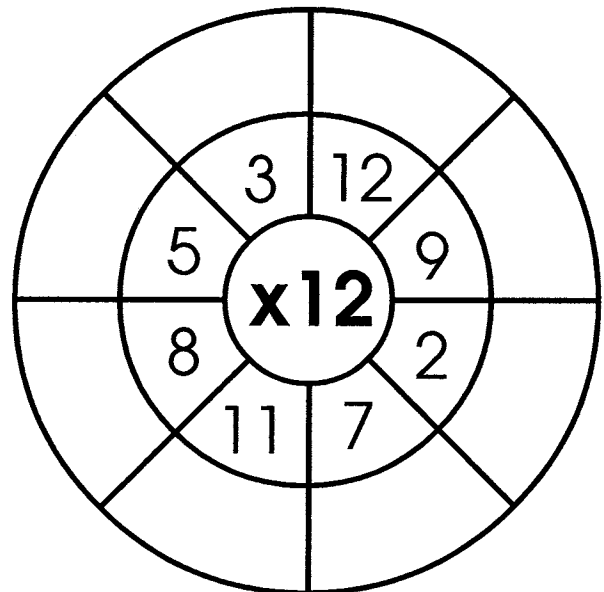
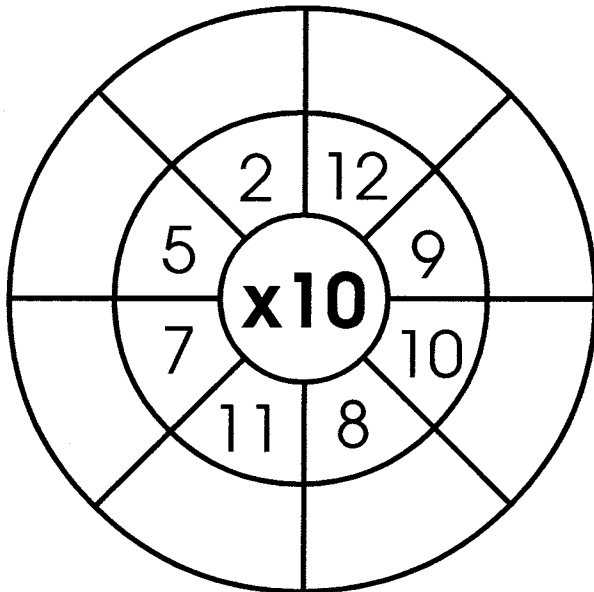


Name: _____

Skill:

Multiplication Wheels

Multiply the number in the middle with each number in turn. Then write your answer in the blank.



Number of Problems: 32 Number Correct: _____ Time to complete: ____ min.