

TOUCHMATH[®]

THE ALPHABET OF MATHEMATICS

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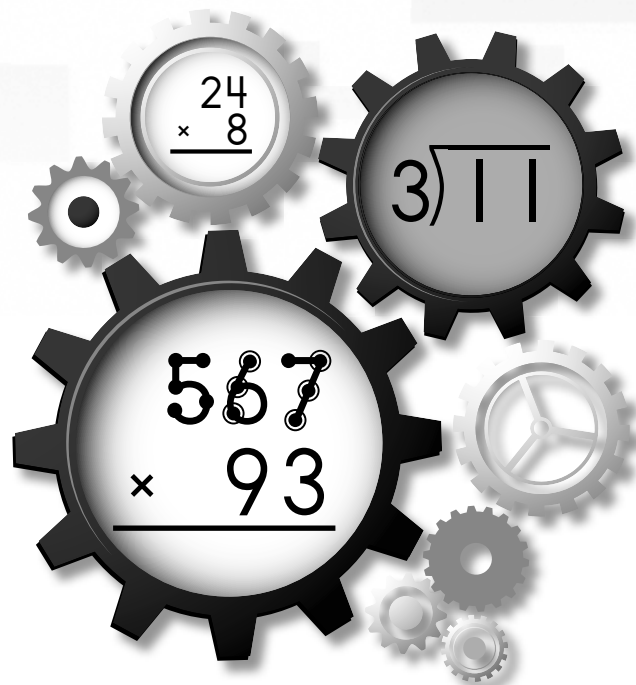


UNIT
5

CLASSIC UPPER GRADES MULTIPLICATION & DIVISION 2

MODULE TITLES

- 1: Multiplication by One Digit
- 2: Division by One Digit
- 3: Multiplication Using the Algorithm
- 4: Division Using the Algorithm
- 5: Multiplication by Two Digits
- 6: Division by Two Digits
- 7: Mixed Practice



► Multiplication & Division 2

Unit 5 ◉

Table of Contents

	Module Guide	Activity Sheets
Upper Grades Program Introduction	2	
Unit Overview		
• Overview of Content • Objectives • Vocabulary	5	
• Common Core State Standards	6	
• Parent/Guardian Communication Letter.	8	
Progress Monitoring Records		
• Unit Pretest	9	
• Unit Review and Posttest.	10	
Unit Pretest Directions	11	
• Multiplication & Division 2 Pretest.		1–4
Module 1: Multiplication by One Digit	14	
Module 2: Division by One Digit	34	
Module 3: Multiplication Using the Algorithm	52	
Module 4: Division Using the Algorithm	80	
Module 5: Multiplication by Two Digits	110	
Module 6: Division by Two Digits	136	
Module 7: Mixed Practice	160	
Unit Review Directions	175	
• Multiplication & Division 2 Review.		193–196
Unit Posttest Directions	177	
• Multiplication & Division 2 Posttest		197–200
Answer Key	A1	

Organization

The following paragraphs describe the structure of the curriculum. If you would like more information about TouchMath, our teacher training DVD is available at no charge. Request online at www.touchmath.com/freetraining, or call 1-800-888-9191.

Unit Components

The goals for each unit are defined in the overview of skills. These broad proficiencies often establish the framework for concepts of increasing complexity. The goals are broken down into clear, manageable objectives that list the academic expectations of the students and summarize the module-level objectives. Unit vocabulary and detailed Common Core State Standards complete the unit overview. The unit pre- and post-tests immediately follow with directions for administering, recording results, and using the results to determine each student's educational plan.

Module Guides

The table of contents provides the skeleton of the activities within each module guide. The modules include clusters—subsets of the featured skill. A paragraph overview of the module

- identifies the clusters,
- explains the activities,
- lists the Common Core State Standards by their code,
- specifies objectives in the order of presentation,
- labels basic prerequisites,
- lists vocabulary necessary for skill attainment, and
- suggests readily available materials that would be helpful during the lesson

The lessons in the modules begin with a pretest, which gives basic directions for completion. It is recommended that you give little instruction related to the skill before testing. A record sheet is included for tracking student achievement. This record is found on the third page of each module guide. Instructional strategies follow the pretest, providing ideas for the most effective use of the student activity sheets. Four different formatting conventions reveal which type of strategy is being offered:

Box: Information in this shape is background information for the teacher, explaining the skill and illuminating the purpose and/or value of mastery.

☞: A speech bubble offers what the teacher is to say to the class. Anyone presenting the lesson could use this script.

◆: A diamond bullet suggests action for the teacher. It typically includes directions such as "Write ... on the whiteboard." "Monitor students as they complete the row of problems."

Bold: Directions in bold type suggest actions relating to transitions. These include statements such as "Distribute activity sheets ... to the students." "Activity Sheet ... Directions." "Repeat the activity sheet xx process ..."

The answer keys are imbedded in the instructional strategies for a quick reference while planning or presenting the lesson. Modified directions for the activity sheets are included for use after the detailed, step-by-step process to ensure understanding of the concepts.

A posttest follows the instruction within the module. Refer to the module guide for directions for administering the posttest. You can record results and compare them to the pretest. The module concludes with suggestions for differentiated instruction and real world applications.

- ◆ Monitor students as they apply the procedure independently. Provide support as needed.
 - How can we remember the steps to multiply two digits by one digit? Yes, MR. MARC. The period after MR. reminds you to stop and make sure you recorded the number of tens from the multiplication of the ones.

Independent Practice

- ◆ No independent practice is recommended for activity sheet 53. Instruction is necessary for all students.

Distribute activity sheet 54 to the students.

Instruction: activity sheet 54

- We are going to practice multiplying two digits by one digit using MR. MARC.

Let's do the first problem together.

Step 1: Multiply. 3×7 . Is the product greater than 9? Yes.

Step 2: Regroup. Write 2 in the box and 1 in the ones place in the answer.

Step 3: Multiply. 3×6 . Say 18.

Step 4: Add. $2 + 18$. Is the sum greater than 9? Yes.

Step 5: Regroup. Write 2 in the hundreds place and 0 in the tens place.

Step 6: Check. Read the problem: $3 \times 67 = 201$. Check each step. Now estimate. Is 67 closer to 60 or 70? Yes, 70. Multiply $3 \times 70 = 210$. Is the solution close to 210? Yes.¹

Look at the second problem in the first row. Use the steps. Do steps 1 and 2 on your own. Put your pencil down when you have completed them.

- ◆ Monitor the students as they move from guided practice to independent practice to ensure they are successful with the first two steps. Provide assistance as needed.
 - Stand up if you wrote 2 in the box and 0 in the ones place in the answer.

Talk with your partner about step 3. What is the product of 5×8 ? Yes, 40.

Tell your partner what step 4 is. Yes, it is to add 2 and 40.

Look at step 5. Is 42 greater than 9? Yes. Do we need to regroup? Yes. Write 4 in the hundreds place and 2 in the tens place.

Name _____ Date _____

H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 67 \\ \times 3 \\ \hline 201 \end{array}$	H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 84 \\ \times 5 \\ \hline 420 \end{array}$	H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 38 \\ \times 3 \\ \hline 114 \end{array}$	Remember: ☐Multiply ☐Regroup ☐Multiply ☐Add ☐Regroup @Check
H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 78 \\ \times 4 \\ \hline 292 \end{array}$	H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 49 \\ \times 6 \\ \hline 294 \end{array}$	H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 79 \\ \times 8 \\ \hline 632 \end{array}$	Remember: ☐Multiply ☐Regroup ☐Multiply ☐Add ☐Regroup @Check
H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 55 \\ \times 2 \\ \hline 110 \end{array}$	H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 16 \\ \times 9 \\ \hline 144 \end{array}$	H I T O $\begin{array}{r} \boxed{2} \boxed{1} \\ 89 \\ \times 7 \\ \hline 623 \end{array}$	Remember: ☐Multiply ☐Regroup ☐Multiply ☐Add ☐Regroup @Check

Lynette, Larry, and Lisa each have 89 seashells they collected.
How many seashells do they have altogether?

267 seashells

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54

Instructional Insight

¹Continuing to use estimation to check the problem is a sound practice. When using calculators for computation, comparing estimates to the solutions reduces errors.

► Multiplication Using the Algorithm

Unit 5 ◉ Module 3

Cluster 1 Two and Three Digits by One Digit Activity Sheets 53–66

- Let's do step 6 together. Read the problem and solution:
 $5 \times 84 = 420$. Check each step. Now let's estimate. Is 84 closer to 80 or 90? Yes, it is closer to 80. Multiply $5 \times 80 = 400$. Is the solution close to the estimate? Yes.

Look at the last problem in the first row. Complete the first five steps. Please put your pencil down when you are finished.

Let's check together. Read the problem and the solution:
 $3 \times 38 = 114$. Check each step. Now estimate. $3 \times 40 = 120$. Is 114 close to 120? Yes.

Complete the second row with your partner. Talk through each step.

Let's check the second row together. Read the problems and the solutions: $4 \times 73 = 292$, $6 \times 49 = 294$, $8 \times 79 = 632$. Check each step of your work. Let's estimate each one as a final check. $4 \times 70 = 280$. The solution 292 is close to 280. The second one is $6 \times 50 = 300$. The solution 294 is close to 300. The third one is $8 \times 80 = 640$. The solution 632 is close to 640.¹

Complete the third row on your own. Follow the steps to remind you.

Let's do the word problem together. Read the problem. Write the expression. Yes, 3×89 . Find the product. Did you get 267? What if we wanted to know how many more seashells they need to have 300? What operation would you use? Yes, subtraction. What is the difference between 300 and 267? Yes, 33.²

Differentiated Directions

¹For students who were unsuccessful with the problems in the second row, provide assistance as they do the problems in the third row.

Instructional Insight

²Modeling and coaching students as they work with two-step word problems leads to greater achievement.

Independent Practice

- Use place value, cues, TouchPoints, and the steps for multiplication to find the products. Read and solve the word problem.

Repeat the activity sheet 54 process for sheet 55, or assign the sheet to be completed independently.

Name _____		Date _____	
$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 34 \\ \times 3 \\ \hline 102 \end{array}$	$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 25 \\ \times 5 \\ \hline 125 \end{array}$	$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 99 \\ \times 2 \\ \hline 198 \end{array}$	Remember: <input type="checkbox"/> Multiply <input type="checkbox"/> Regroup <input type="checkbox"/> Multiply <input type="checkbox"/> Add <input type="checkbox"/> Regroup <input type="checkbox"/> Check
$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 88 \\ \times 8 \\ \hline 704 \end{array}$	$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 29 \\ \times 7 \\ \hline 203 \end{array}$	$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 86 \\ \times 4 \\ \hline 344 \end{array}$	Remember: <input type="checkbox"/> Multiply <input type="checkbox"/> Regroup <input type="checkbox"/> Multiply <input type="checkbox"/> Add <input type="checkbox"/> Regroup <input type="checkbox"/> Check
$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 47 \\ \times 6 \\ \hline 282 \end{array}$	$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 15 \\ \times 9 \\ \hline 135 \end{array}$	$\begin{array}{r} \text{HIT} \text{ O} \\ \square \square 1 \\ 92 \\ \times 5 \\ \hline 460 \end{array}$	Remember: <input type="checkbox"/> Multiply <input type="checkbox"/> Regroup <input type="checkbox"/> Multiply <input type="checkbox"/> Add <input type="checkbox"/> Regroup <input type="checkbox"/> Check
<p>Ms. Marcotta has 15 boxes of pencils. There are 8 pencils in each box. How many pencils are there?</p> <p style="text-align: right;">120 pencils</p>			
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1.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \downarrow \\ 32 \\ \times 2 \\ \hline 66 \end{array}$$
 True
 False

2.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \downarrow \\ 23 \\ \times 3 \\ \hline 66 \end{array}$$
 True
 False

3.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \downarrow \\ 14 \\ \times 2 \\ \hline 28 \end{array}$$
 True
 False

4.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \downarrow \\ 21 \\ \times 4 \\ \hline 65 \end{array}$$
 True
 False

5.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \boxed{1} \downarrow \\ 45 \\ \times 2 \\ \hline 92 \end{array}$$
 True
 False

6.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \boxed{1} \downarrow \\ 24 \\ \times 3 \\ \hline 57 \end{array}$$
 True
 False

7.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \boxed{1} \downarrow \\ 38 \\ \times 2 \\ \hline 76 \end{array}$$
 True
 False

8.
$$\begin{array}{r} \text{T} \quad \text{O} \\ \boxed{2} \downarrow \\ 15 \\ \times 4 \\ \hline 50 \end{array}$$
 True
 False

9.
$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ \boxed{4} \downarrow \\ 59 \\ \times 5 \\ \hline 254 \end{array}$$
 True
 False

10.
$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ \boxed{5} \downarrow \\ 57 \\ \times 8 \\ \hline 196 \end{array}$$
 True
 False

11.
$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ \boxed{2} \downarrow \\ 83 \\ \times 7 \\ \hline 561 \end{array}$$
 True
 False

12.
$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ \boxed{5} \downarrow \\ 45 \\ \times 9 \\ \hline 414 \end{array}$$
 True
 False

13. Bob bought 17 packages of apple slices for his classmates. There are 4 pieces in each package. Bob bought 68 apple slices in all.

True
 False

1.

$4r2$

$$5 \overline{)22}$$

2.

$$8 \overline{)17}$$

3.

$$4 \overline{)21}$$

4.

$$6 \overline{)28}$$

5.

$$3 \overline{)23}$$

6.

$$6 \overline{)40}$$

7.

$$33 \div 8 = \underline{\quad}$$

8.

$$9 \div 4 = \underline{\quad}$$

9.

$$28 \div 6 = \underline{\quad}$$

H	T	O
	□	↓
	5	7
x		3
<hr/>		

H	T	O
	□	↓
	8	4
x		5
<hr/>		

H	T	O
	□	↓
	3	8
x		3
<hr/>		

Remember:

Multiply
Regroup
Multiply
Add
Regroup
Check

H	T	O
	□	↓
	7	3
x		4
<hr/>		

H	T	O
	□	↓
	4	9
x		6
<hr/>		

H	T	O
	□	↓
	7	9
x		8
<hr/>		

Remember:

Multiply
Regroup
Multiply
Add
Regroup
Check

H	T	O
	□	↓
	5	5
x		2
<hr/>		

H	T	O
	□	↓
	1	5
x		9
<hr/>		

H	T	O
	□	↓
	8	9
x		7
<hr/>		

Remember:

Multiply
Regroup
Multiply
Add
Regroup
Check

Lynette, Larry, and Lisa each have 89 seashells they collected.
 How many seashells do they have altogether?

_____ seashells

	TTH	TH	H	T	O
	□	□	□	↓	
	3	5	8	5	
x				8	
<hr/>					

	TH	H	T	O
	□	□	□	↓
	2	4	1	9
x				3
<hr/>				

	TTH	TH	H	T	O
	□	□	□	↓	
	5	2	1	0	
x				6	
<hr/>					

	TTH	TH	H	T	O
	□	□	□	↓	
	7	5	2	1	
x				2	
<hr/>					

	TTH	TH	H	T	O
	□	□	□	↓	
	9	3	9	4	
x				9	
<hr/>					

	TTH	TH	H	T	O
	□	□	□	↓	
	8	2	5	3	
x				5	
<hr/>					

	TTH	TH	H	T	O
	□	□	□	↓	
	7	2	3	7	
x				4	
<hr/>					

	TTH	TH	H	T	O
	□	□	□	↓	
	4	1	9	5	
x				3	
<hr/>					

	TTH	TH	H	T	O
	□	□	□	↓	
	5	5	4	2	
x				6	
<hr/>					

In the answer to the last problem, which of the choices is true?

- (A) No regrouping
- (B) 2 in hundreds place
- (C) >40,000
- (D) None

$$\begin{array}{r} \square \\ 7 \overline{)56} \end{array}$$

- Step 1: **E**stimate
- Step 2: **D**ivide
- Step 3: **M**ultiply
- Step 4: **S**ubtract
- Step 5: **C**ompare
- Step 6: **B**ring down

Remember Every Day My Snake Crawls By

(Estimate, Divide, Multiply, Subtract, Compare, Bring down)

$$\begin{array}{r} \square \\ 4 \overline{)28} \end{array}$$

- Step 1: **E**stimate
- Step 2: **D**ivide
- Step 3: **M**ultiply
- Step 4: **S**ubtract
- Step 5: **C**ompare
- Step 6: **B**ring down

$$\begin{array}{r} \square \\ 6 \overline{)42} \end{array}$$

- E** estimate _____
- D** divide _____
- M** multiply _____
- S** subtract _____
- C** compare _____
- B** bring down _____

	TTH	TH	H	T	O
				↓	
		3	2	4	
	×		9	4	
+					0

	TTH	TH	H	T	O
				↓	
		7	2	5	
	×		4	3	
+					0

	TTH	TH	H	T	O
				↓	
		9	1	8	
	×		7	4	
+					0

	TTH	TH	H	T	O
				↓	
		4	4	7	
	×		5	2	
+					0

	TTH	TH	H	T	O
				↓	
		5	3	9	
	×		8	2	
+					0

	TTH	TH	H	T	O
				↓	
		8	4	8	
	×		3	2	
+					0

$918 \times 74 = \underline{\hspace{2cm}}$

- (A) 10,098
- (B) 68,932
- (C) 70,032
- (D) none

Problem

$$71 \overline{)326}$$

Problem Estimate

$$40 \overline{)200}$$

Quotient Estimate

$$4$$

$$29 \overline{)240}$$

$$70 \overline{)300}$$

$$6$$

$$42 \overline{)175}$$

$$30 \overline{)200}$$

$$5$$

$$63 \overline{)519}$$

$$60 \overline{)200}$$

$$7$$

$$57 \overline{)190}$$

$$60 \overline{)500}$$

$$3$$

$$87 \overline{)688}$$

$$90 \overline{)700}$$

$$8$$

$$\begin{array}{r} 5998 \\ \times \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} 7128 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2705 \\ \times \quad 4 \\ \hline \end{array}$$

$$6 \overline{)618}$$

$$8 \overline{)350}$$

$$7 \overline{)829}$$

$$\begin{array}{r} 2823 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5060 \\ \times \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 8607 \\ \times \quad 9 \\ \hline \end{array}$$

$$6 \overline{)9766}$$

$$8 \overline{)7794}$$

$$7 \overline{)9476}$$