

Eureka Math

4th Grade Module 3 Lesson 8

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Screen A

ReadyGEN™ in Action

3rd Grade
Unit 3, Module A
Lesson 1

Screen B

Gr3(2) U3MAL1 Sample Lesson.pptx

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ReadyGEN™ in Action

3rd Grade
Unit 3, Module A
Lesson 1

“pop-out”

Icons



Read, Draw, Write



Learning Target



Personal White Board



Problem Set



Manipulatives Needed



Fluency



Think Pair Share



Whole Class



Individual



Partner



Small Group



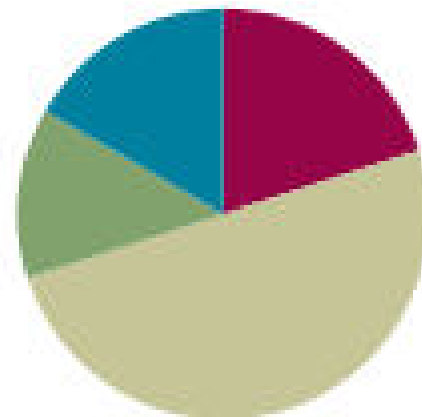
Small Group Time

Lesson 8

Objective: Extend the use of place value disks to represent three- and four-digit by one-digit multiplication.

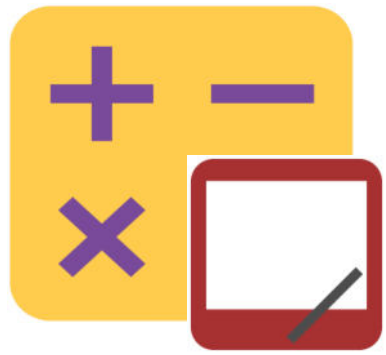
Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problem	(8 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)





**I can extend the use of
place value disks to represent
three- and four digit
by one-digit
multiplication.**

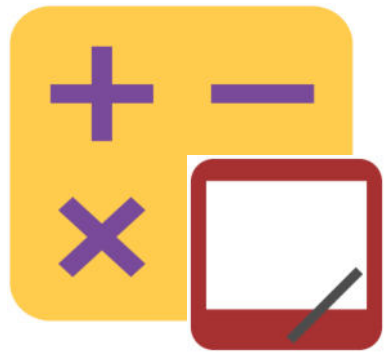


Fluency Practice

Expanded Form

$$200 + 30 + 4$$

Say the addition sentence with the answer in standard form.

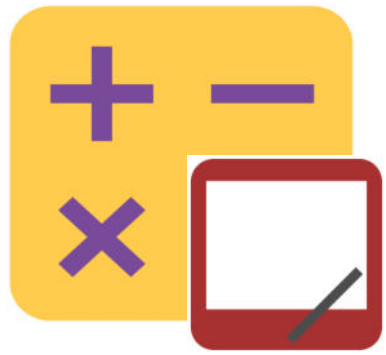


Fluency Practice

Expanded Form

$$3,000 + 500 + 60 + 8$$

Say the addition sentence with the answer in standard form.

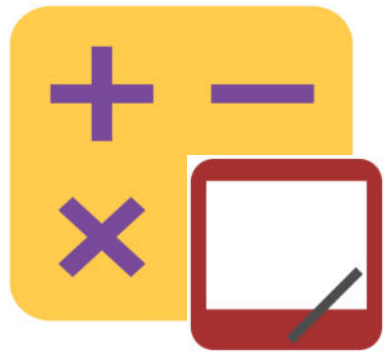


Fluency Practice

Expanded Form

$$400 + 7 + 90$$

Say the addition sentence with the answer in standard form.

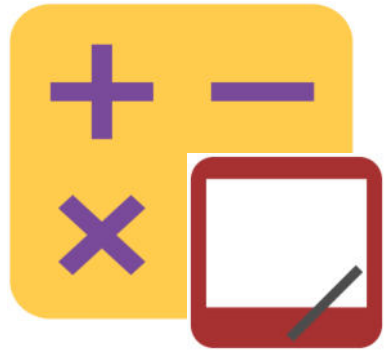


Fluency Practice

Expanded Form

527

**On your personal white board,
write 527 in expanded form.**

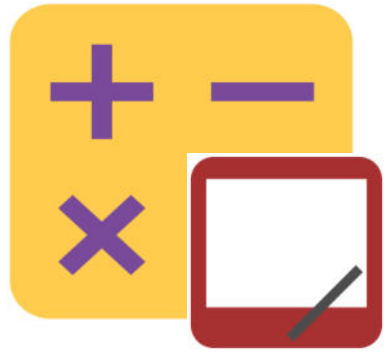


Fluency Practice

Expanded Form

8,463

**On your personal white board,
write 8,463 in expanded form.**



Fluency Practice

Expanded Form

9,075

**On your personal white board,
write 9,075 in expanded form.**



Fluency Practice

Multiply Mentally

Say the multiplication sentence.

$$3 \times 2 = \underline{\quad}$$



Fluency Practice

Multiply Mentally

Say the multiplication sentence.

$$3 \times 2 = 6$$

$$40 \times 2 = \underline{\quad}$$



Fluency Practice

Multiply Mentally

Say the multiplication sentence.

$$3 \times 2 = 6$$

$$40 \times 2 = 80$$

$$43 \times 2 = \underline{\quad}$$



Fluency Practice

Multiply Mentally

Say the multiplication sentence.

$$3 \times 2 = 6$$

$$40 \times 2 = 80$$

$$43 \times 2 = 86$$



Fluency Practice

Multiply Mentally

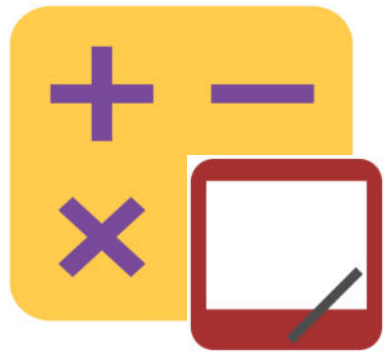
Repeat the process for

$$32 \times 3$$

$$21 \times 4$$

$$24$$

$$\times 4$$



Fluency Practice

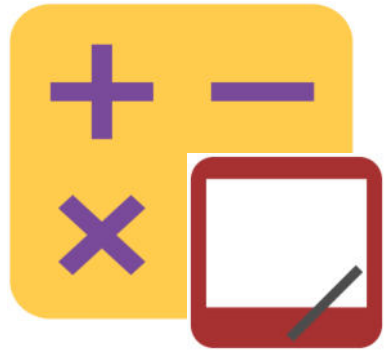
Multiply Using Disks

$$1 \times 32$$

On your personal white board, draw place value disks to show this multiplication sentence.

$$(1 \times \underline{\quad} \text{ tens}) + (1 \times \underline{\quad} \text{ ones})$$

Fill in the blanks and write the problem vertically.



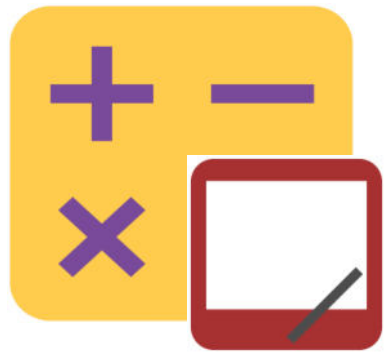
Fluency Practice

Multiply Mentally

(1 x _____ tens) + (1 x _____ ones)

Fill in the blanks and write the problem vertically.

$$\begin{array}{r} 32 \\ \times 1 \\ \hline 2 \\ +30 \\ \hline 32 \end{array}$$



Fluency Practice

Multiply Using Disks

**On your personal white board,
draw place value disks to
show this multiplication sentence.**

TENS	ONES
***	**

1 x 3 tens + 1 x 2 ones

$$\begin{array}{r} 32 \\ \times 1 \\ \hline 2 \\ +30 \\ \hline 32 \end{array}$$

Application Problem

Andre buys a stamp to mail a letter.

The stamp costs 46 cents.



Andre also mails a package.

The postage to mail the package costs 5 times as much as the cost of the stamp.

How much does it cost to mail the package and letter?

Concept Development

Materials

-  (T) Ten thousands place value chart
-  (S) Personal white boards, ten thousands place value chart (template)



Concept Development

Problem 1:


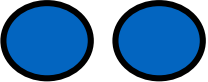
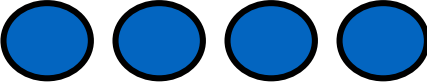
Represent 2×324 with disks.

**Write matching equation,
and record the partial products vertically**



Concept Development

Use your place value chart and draw disks to represent 324.


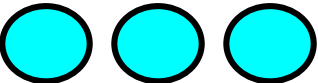

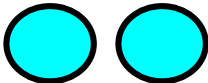

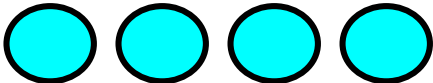
hundreds	tens	ones
		



Concept Development

**Draw disks on your chart to show
1 more group of 324.**

What is the total value in the ones?


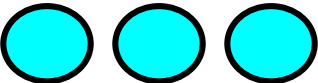
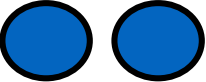
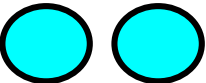
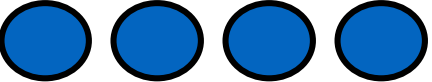
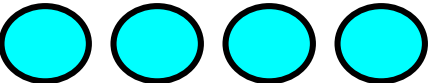
hundreds	tens	ones
 	 	 



Concept Development

**Write 2 x 4 ones under the ones column.
Record it vertically.**

$$\begin{array}{r} 324 \\ \times 2 \\ \hline 8 \end{array}$$

hundreds	tens	ones
 	 	  2 x 4 ones = 8 ones


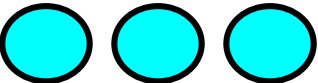

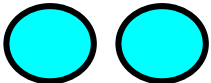

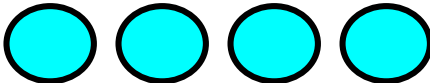


Concept Development

Write 2×4 ones under the ones column.

Record it vertically.

$$\begin{array}{r} 324 \\ \times \quad 2 \\ \hline 8 \\ 40 \end{array}$$


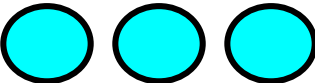
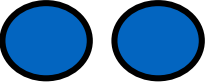
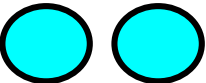
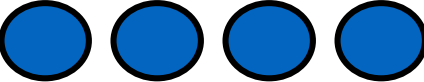
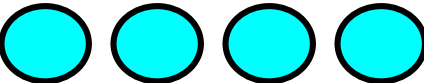
hundreds	tens	ones
 	  $2 \times 2 \text{ tens} =$ 4 tens	  $2 \times 4 \text{ ones} =$ 8 ones



Concept Development

**Write 2×4 ones under the ones column.
Record it vertically.**

$$\begin{array}{r} 324 \\ \times 2 \\ \hline 8 \\ 40 \\ + 600 \\ \hline \end{array}$$


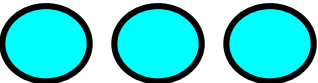
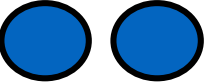
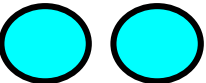
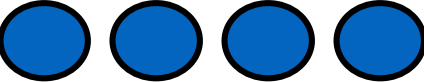
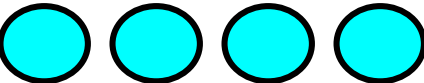
hundreds	tens	ones
 	 	 
$2 \times 3 \text{ hundreds} =$ 6 hundreds	$2 \times 2 \text{ tens} =$ 4 tens	$2 \times 4 \text{ ones} =$ 8 ones



Concept Development

**Write 2×4 ones under the ones column.
Record it vertically.**

$$\begin{array}{r} 324 \\ \times 2 \\ \hline 8 \\ 40 \\ + 600 \\ \hline 648 \end{array}$$

hundreds	tens	ones
 	 	 
$2 \times 3 \text{ hundreds} =$ 6 hundreds	$2 \times 2 \text{ tens} =$ 4 tens	$2 \times 4 \text{ ones} =$ 8 ones

Concept Development

hundreds	tens	ones
•••	••	•••••
•••	••	•••••

2x3 hundreds + 2x2 tens + 2x4 ones

↓

6 hundreds + 4 tens + 8 ones = 648

$$\begin{array}{r} 324 \\ \times 2 \\ \hline 8 \leftarrow 2 \times 4 \text{ ones} \\ 40 \leftarrow 2 \times 2 \text{ tens} \\ + 600 \leftarrow 2 \times 3 \text{ hundreds} \\ \hline 648 \end{array}$$



Concept Development



Using the same strategy, solve

$$**3 \times 231**$$



Concept Development

Problem 2:

Model and solve

$$4 \times 605$$

on the place value chart



Concept Development

Problem 2: 4×605

**Tell your partner the
value of the digit in each place.**



Concept Development

Problem 2: 4×605

Do we need to regroup?

If so, show me...



Concept Development

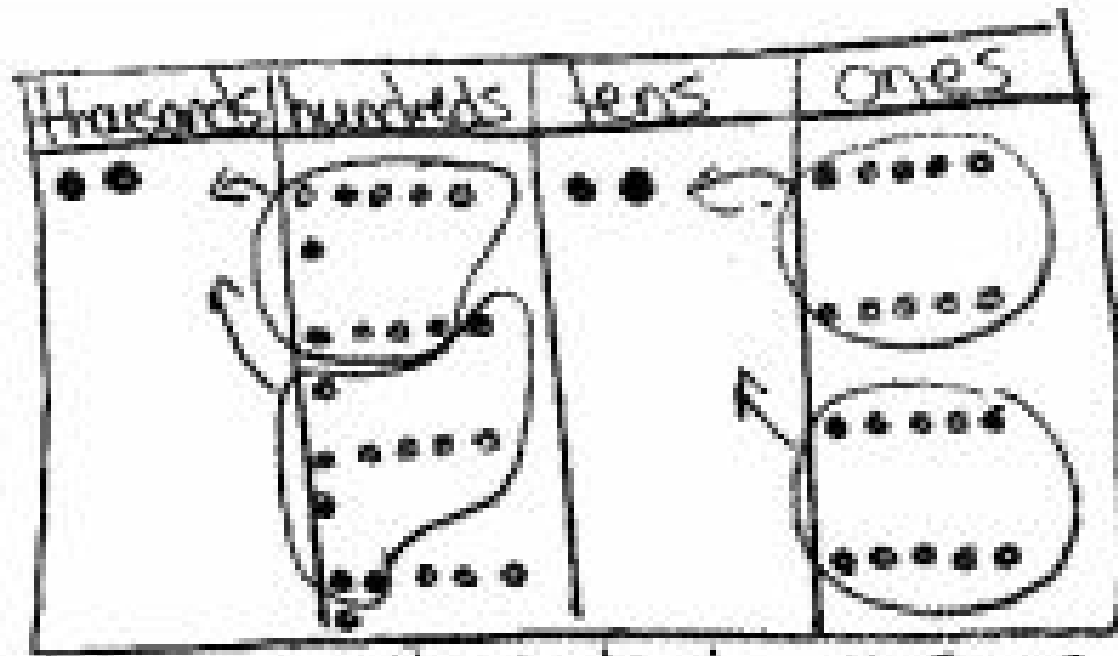
Problem 2: 4×605

Add all the partial products.

What is the sum?



Concept Development



4x6 hundreds + 4x5 ones

↓ ↓
24 hundreds 20 ones

↓ ↓
2 thousands + 4 hundreds + 2 tens = 2,420

$$\begin{array}{r} 605 \\ \times 4 \\ \hline 20 \leftarrow 4 \times 5 \text{ ones} \\ + 2400 \leftarrow 4 \times 6 \text{ hundreds} \\ \hline 2,420 \end{array}$$



Concept Development

Problem 3:

Solve 3×851 using a partial products drawing on the place value chart.



Concept Development

$$\begin{array}{r} 851 \\ \times \underline{3} \end{array}$$

**Write the problem 3×851 vertically.
This time, rather than recording
3 groups of 851 to begin,
let's record the
partial products as we multiply each unit.**



Concept Development

851

x 3

3

Three times one is...



Concept Development

851

x 3

3

150

Three times one is...

Three times five tens is...



Concept Development

851

x 3

3

150

+ 2400

Three times one is...

Three times five tens is...

Three times eight hundreds is...



Concept Development

851

x 3

3

150

+ 2400

2,553

Three times one is...

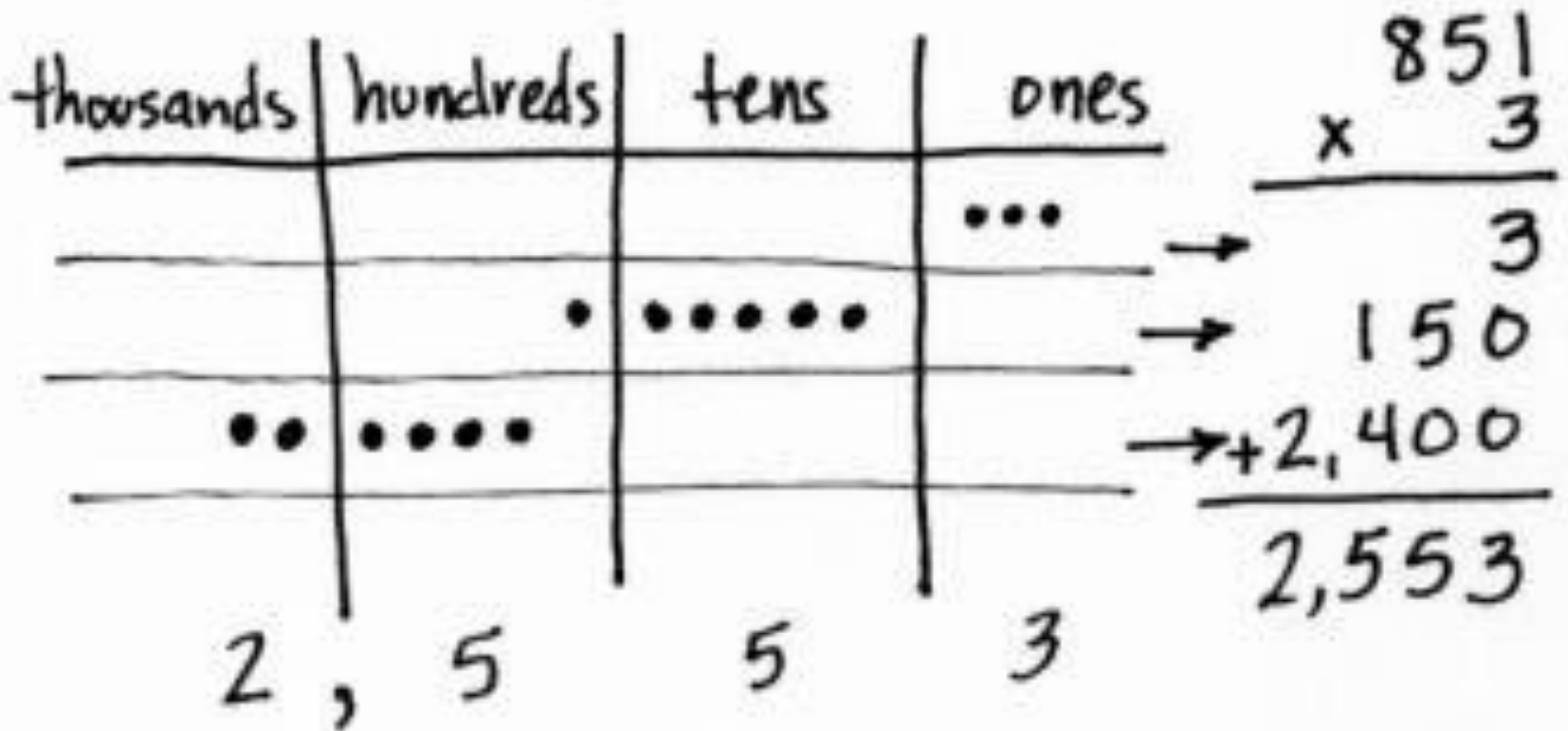
Three times five tens is...

Three times eight hundreds is...

Three times 851



Concept Development





Concept Development

Problem 4:

Solve $4 \times 6,379$ using a partial products drawing on the place value chart



Concept Development

$$4 \times 6,379$$

6,379

x 4

36 *four times nine is...*



Concept Development

$$4 \times 6,379$$

6,379

x 4

36 *four times nine is...*

280 *four times seven tens is...*



Concept Development

$$4 \times 6,379$$

6,379

x 4

36 *four times nine is...*

280 *four times seven tens is...*

1,200 *Four times three hundreds is...*



Concept Development

$$4 \times 6,379$$

6,379

x 4

36 *four times nine is...*

280 *four times seven tens is...*

1,200 *Four times three hundreds is...*

+ 24,000 *four times six thousands is...*



Concept Development

$$4 \times 6,379$$

6,379

x 4

36 *four times nine is...*

280 *four times seven tens is...*

1,200 *Four times three hundreds is...*

+ 24,000 *four times six thousands is...*

25,516 *four times 6,379*



Concept Development

$$4 \times 6,379$$

thousands	hundreds	tens	ones
			...
	•	•••••	
••	•••••		

2, 5 5 3

→ → →

$$\begin{array}{r} 851 \\ \times 3 \\ \hline 3 \\ 150 \\ +2,400 \\ \hline 2,553 \end{array}$$

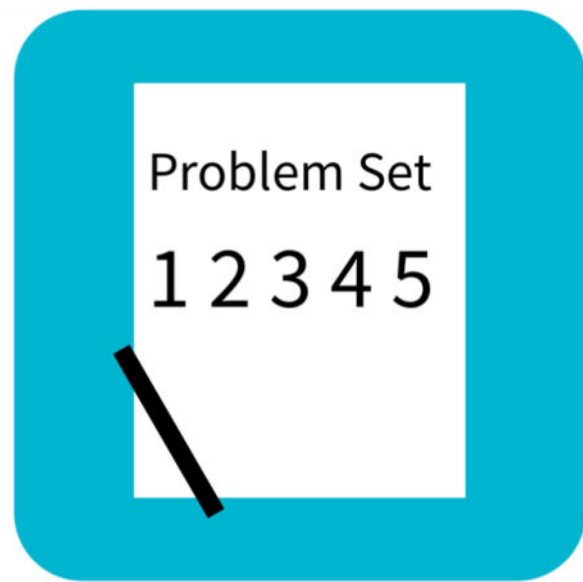


Concept Development



With your partner, solve

$$3 \times 2,567$$



Problem Set

Name _____

Date _____

1. Represent the following expressions with disks, regrouping as necessary, writing a matching expression, and recording the partial products vertically as shown below.

a. 1×213

hundreds	tens	ones

$$\begin{array}{r} 213 \\ \times 1 \\ \hline \end{array}$$

$\rightarrow 1 \times 3$ ones
 $\rightarrow 1 \times 1$ ten
 $\rightarrow 1 \times 2$ hundreds

$1 \times \underline{\quad}$ hundreds + $1 \times \underline{\quad}$ ten + $1 \times \underline{\quad}$ ones

Debrief

What pattern did you notice in the answers to Problem 1(a) and (b)?

If you needed an estimate for Problem 1(c), how could you round one of the numbers? How close would your estimate be to the exact answer?

Explain to your partner how to solve Problem 2(c). How did you make sure you didn't make any mistakes when there were so many steps to this problem?

Debrief

How did the Application Problem connect to today's lesson?

Compare the two methods of drawing the multiplication on the place value chart.

Can you think of a word problem that could be modeled by Problem 2(d)?

Exit Ticket

Name _____

Date _____

Represent the following expressions with disks, regrouping as necessary. To the right, record the partial products vertically.

1. 4×513

2. $3 \times 1,054$