Eureka Math

4th Grade
Module 3
Lesson 8

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Directions for customizing presentations are available on the next slide.

Customize this Slideshow

Reflecting your Teaching Style and Learning Needs of Your Students

- When the Google Slides presentation is opened, it will look like Screen A.
- Click on the “pop-out” button in the upper right hand corner to change the view.
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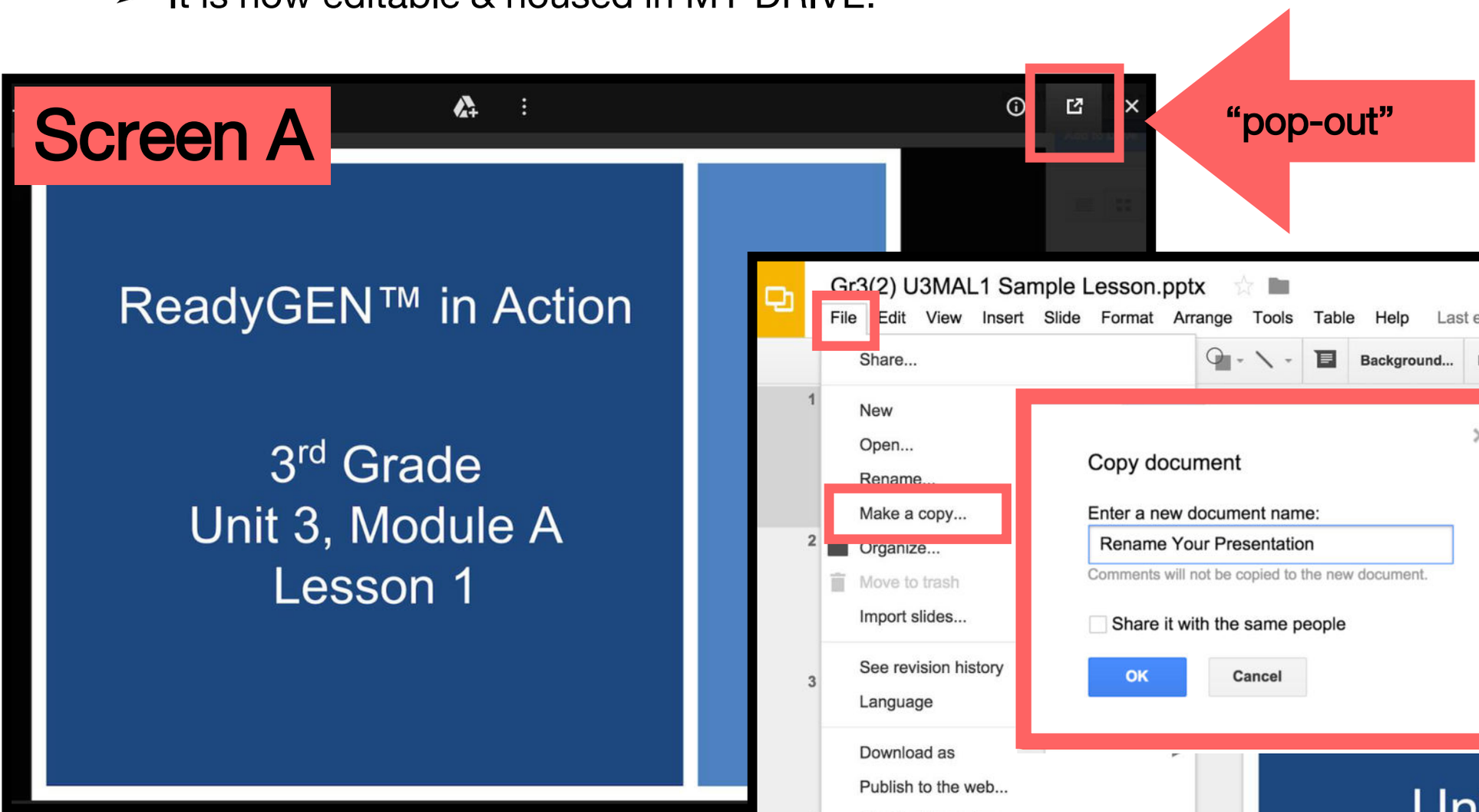
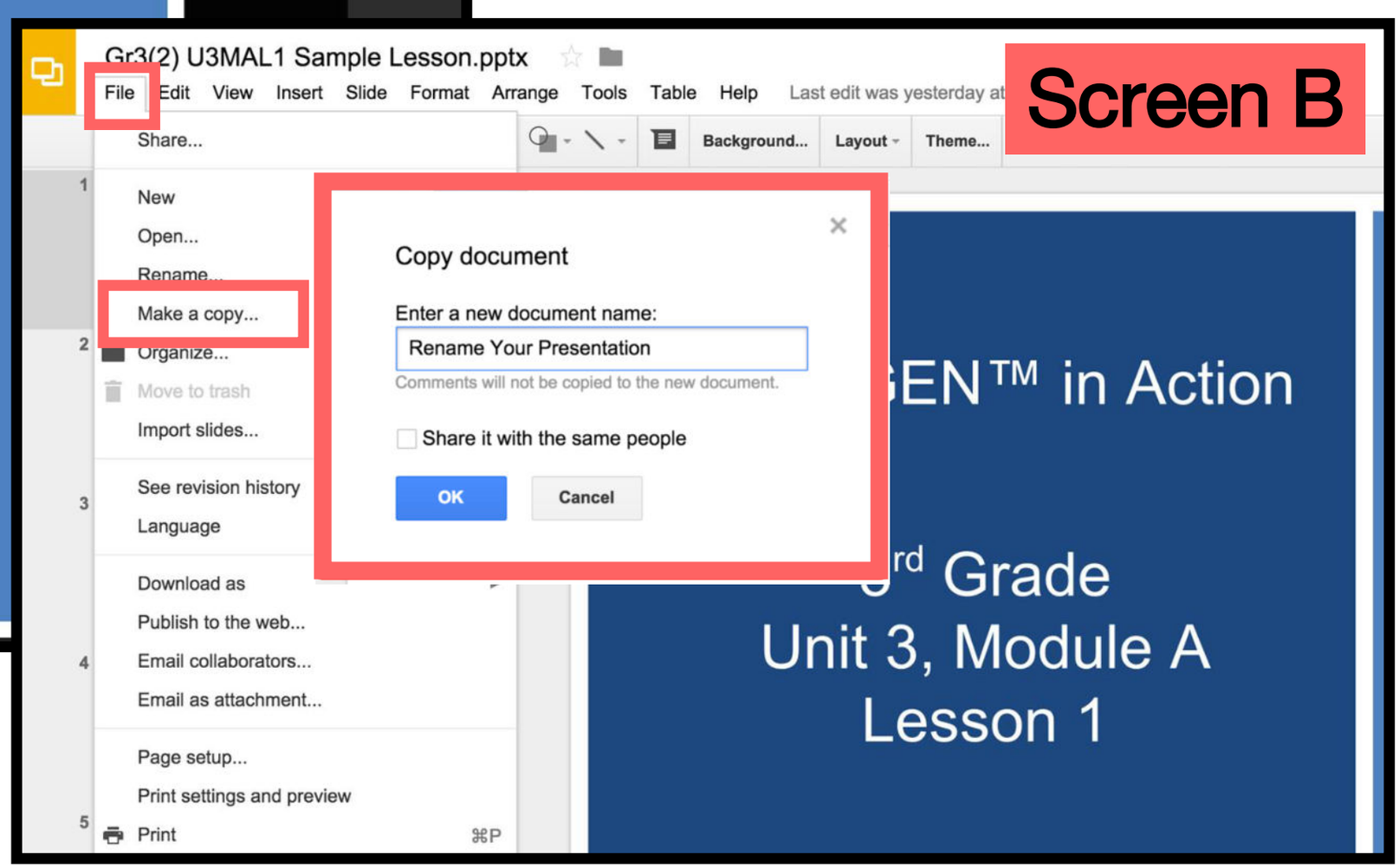
- Choose MAKE A COPY and rename your presentation.
- Google Slides will open your renamed presentation.
- It is now editable & housed in MY DRIVE.



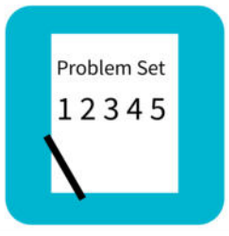


Icons

Read, Draw, Write

Learning Target

Personal White Board

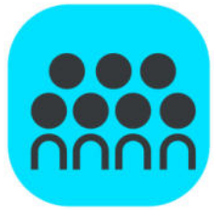


Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

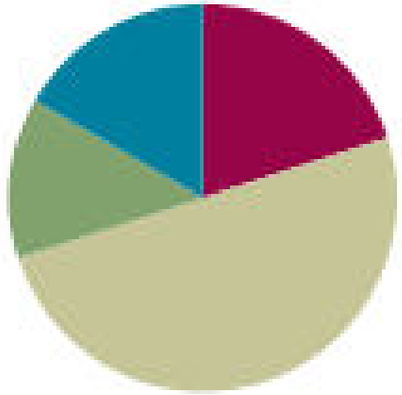
Small Group Time

Lesson 8

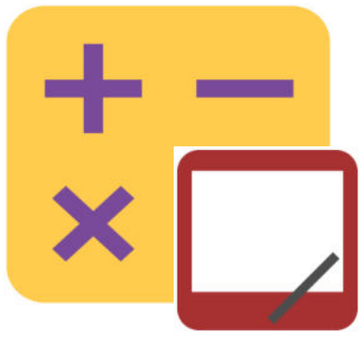
Objective: Extend the use of place value disks to represent three- and four-digit by one-digit multiplication.

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.

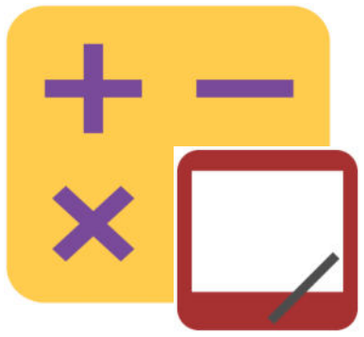


Fluency Practice

Expanded Form

200 + 30 + 4

Say the addition sentence with the answer in standard form.

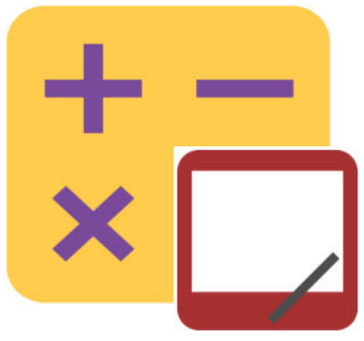


Fluency Practice

Expanded Form

3,000 + 500 + 60 + 8

Say the addition sentence with the answer in standard form.

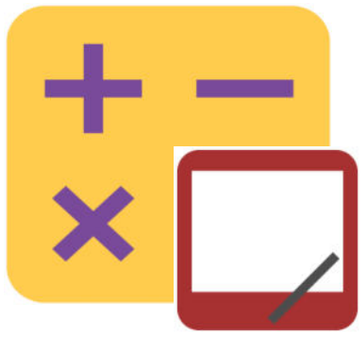


Fluency Practice

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 x 2 = ____

Fluency Practice

Multiply Mentally

Say the multiplication sentence.

3 x 2 = 6

40 x 2 = ____

Fluency Practice

Multiply Mentally

Say the multiplication sentence.

3 x 2 = 6

40 x 2 = 80

43 x 2 = ____

Fluency Practice

Multiply Mentally

Say the multiplication sentence.

3 x 2 = 6

40 x 2 = 80

43 x 2 = 86

Fluency Practice

Multiply Mentally

Repeat the process for

32 x 3

21 x 4

x 4

24

Fluency Practice

Multiply Using Disks

1 x 32

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

(1 x ____ tens) + (1 x ____ 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 3tens + 1 x 2ones

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

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

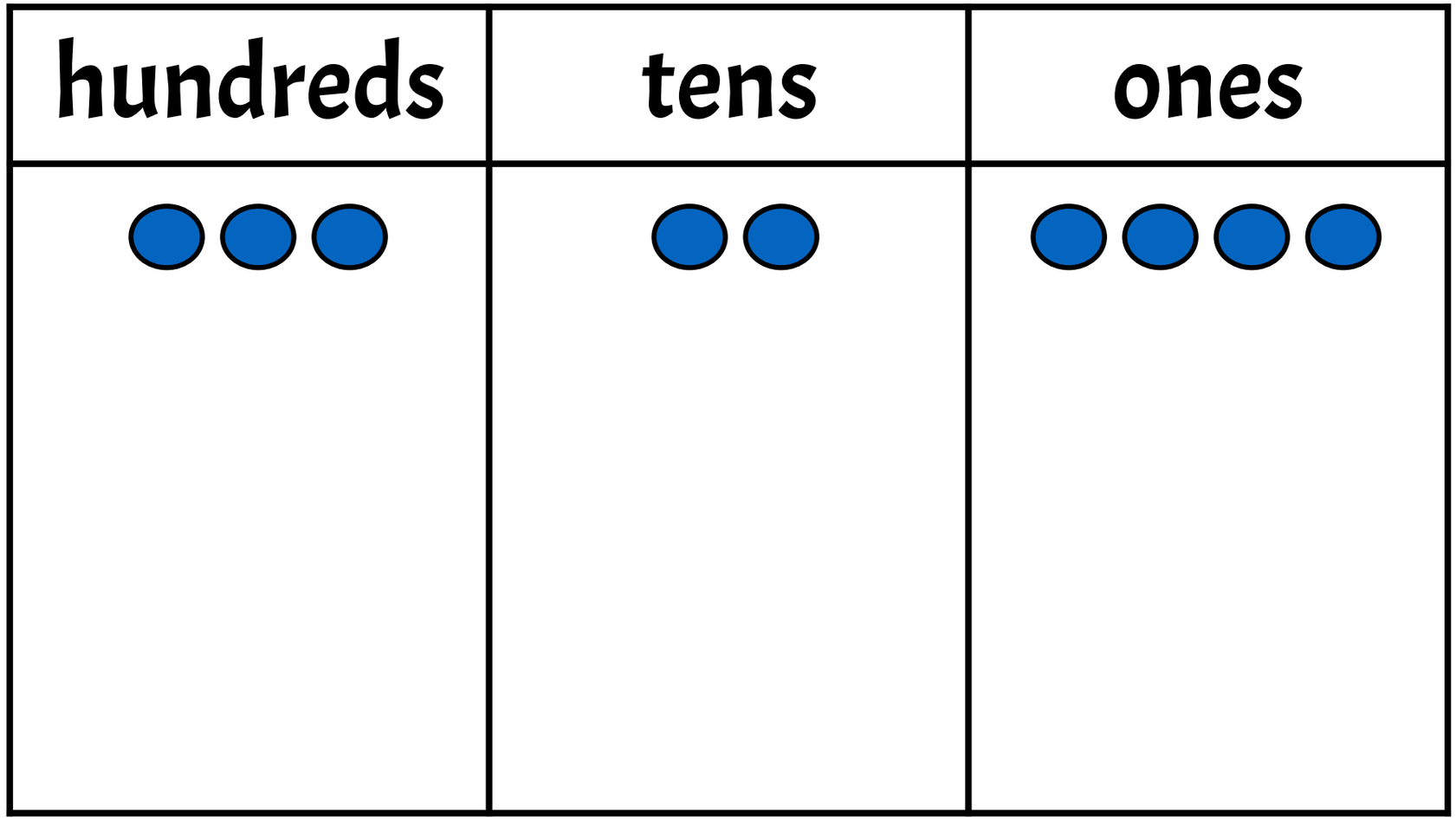
Problem 1:

Represent 2 x 324 with disks.

Write matching equation,
and record the partial products vertically

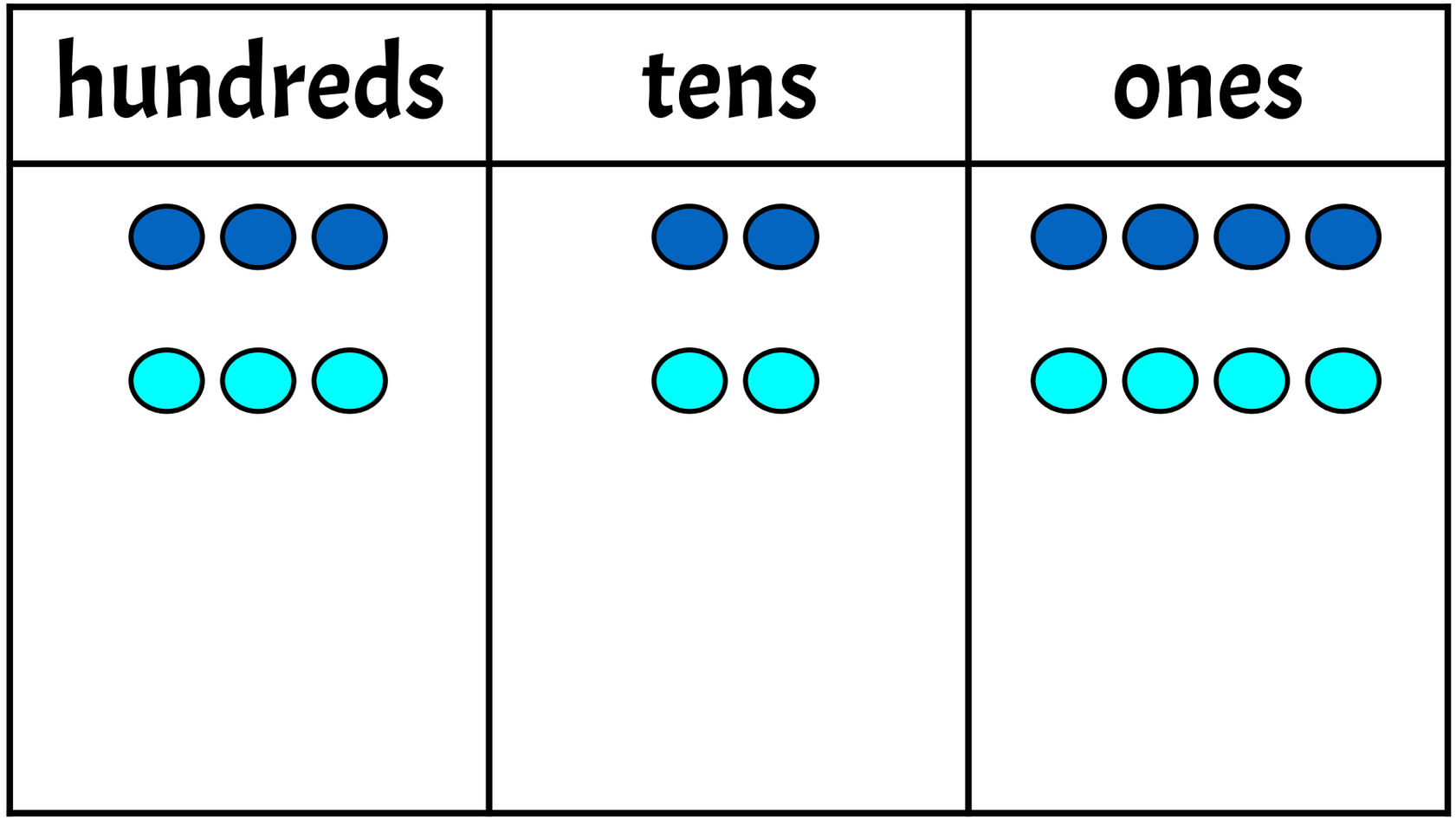
Concept Development

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



Concept Development

Draw disks on your chart to show
1 more group of 324.
What is the total value in the ones?



Concept Development

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

324

x 2

8

hundreds	tens	ones
●●●	●●	●●●●
●●●	●●	●●●●
		2 x 4 ones = 8 ones

Concept Development

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

3**24**

x **2**

8

40

hundreds	tens	ones
●●●	●●	●●●●
●●●	●●	●●●●
	2 x 2 tens = 4 tens	2 x 4 ones = 8 ones

Concept Development

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

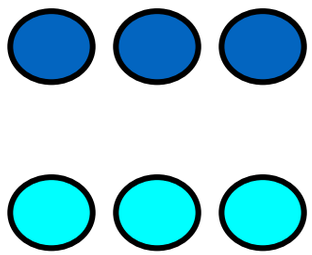
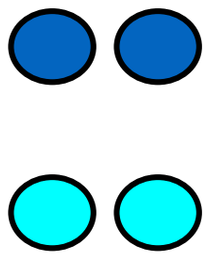
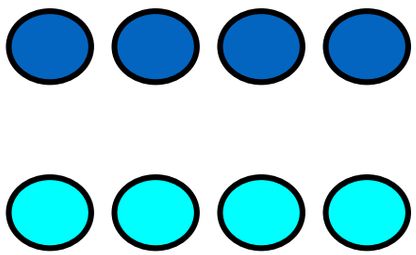
324

x 2

8

40

+ 600

hundreds	tens	ones
		
2 x 3 hundreds= 6 hundreds	2 x 2 tens = 4 tens	2 x 4 ones = 8 ones

Concept Development

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

324

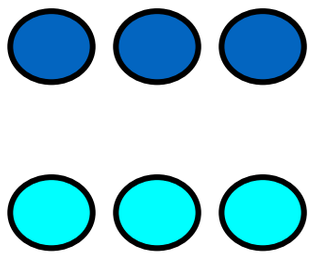
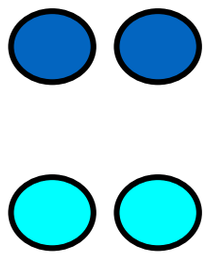
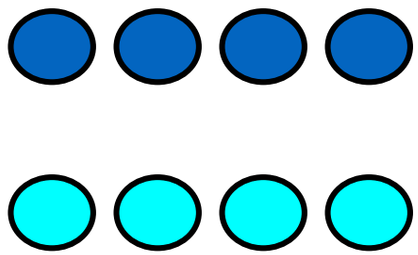
x 2

8

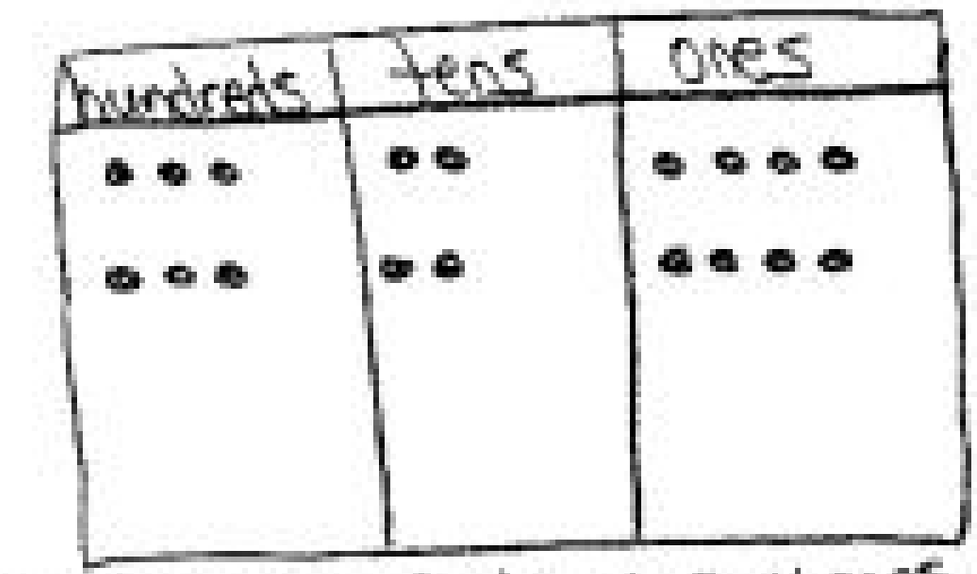
40

+ 600

648

hundreds	tens	ones
		
2 x 3 hundreds= 6 hundreds	2 x 2 tens = 4 tens	2 x 4 ones = 8 ones

Concept Development



2x3hundreds + 2x2tens + 2x4ones

↓

6 hundreds + 4 tens + 8 ones = 648

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

Concept Development

Using the same strategy, solve

3 x 231

Concept Development

Problem 2:

Model and solve

4 x 605

on the place value chart

Concept Development

Problem 2: **4 x 605**

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

Concept Development

Problem 2: **4 x 605**

Do we need to regroup?

If so, show me...

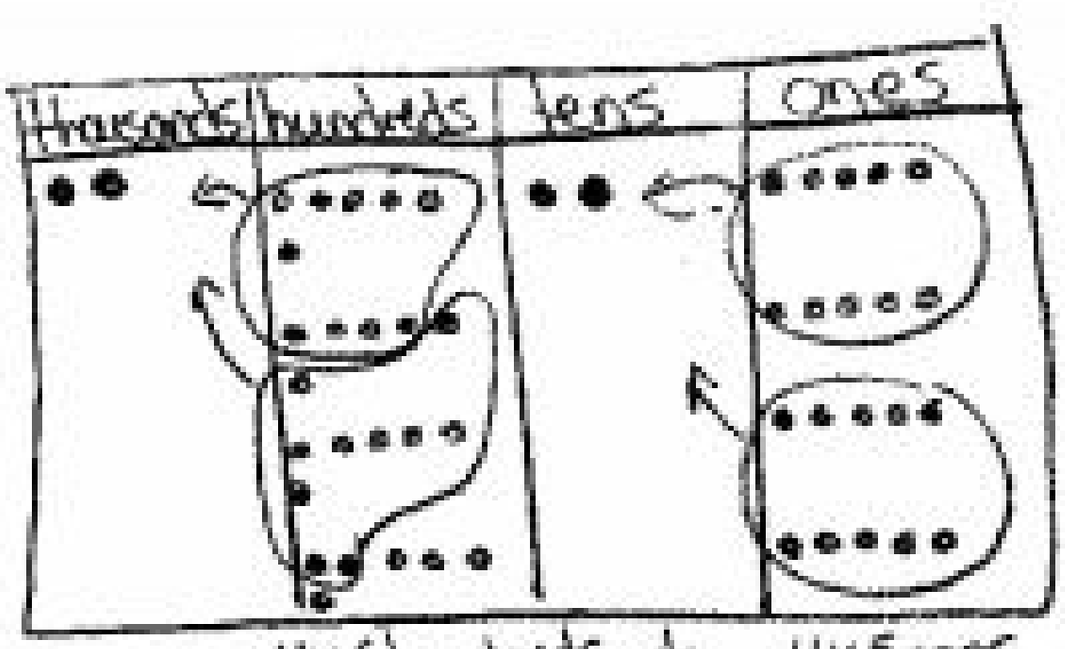
Concept Development

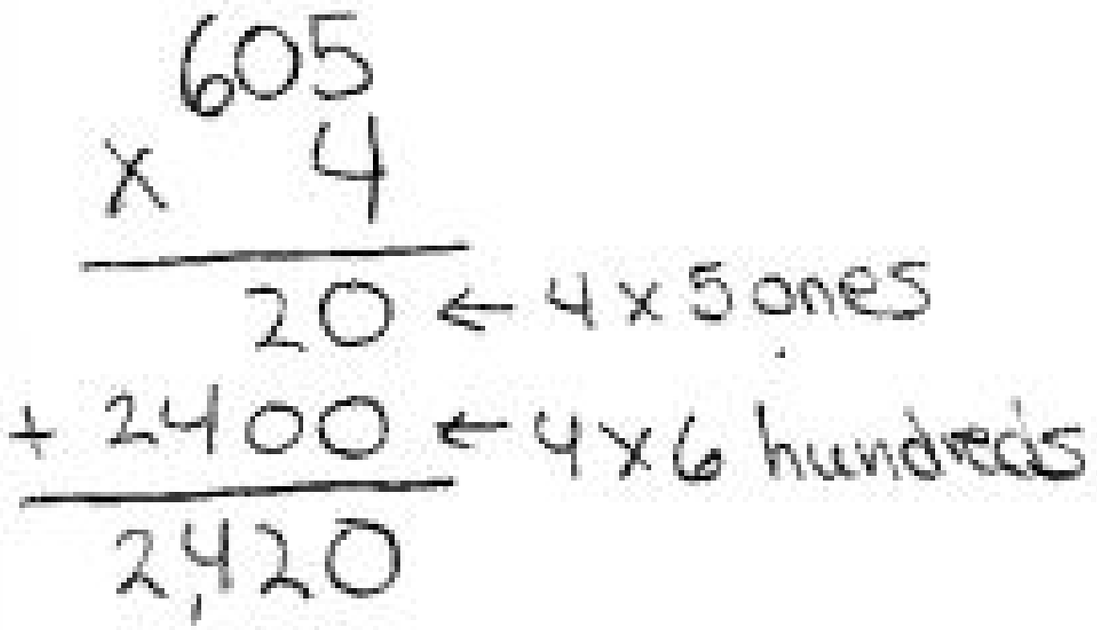
Problem 2: **4 x 605**

Add all the partial products.

What is the sum?

Concept Development





Concept Development

Problem 3:

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

Concept Development

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

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 Three times one is . . .

150 Three times five tens is . . .

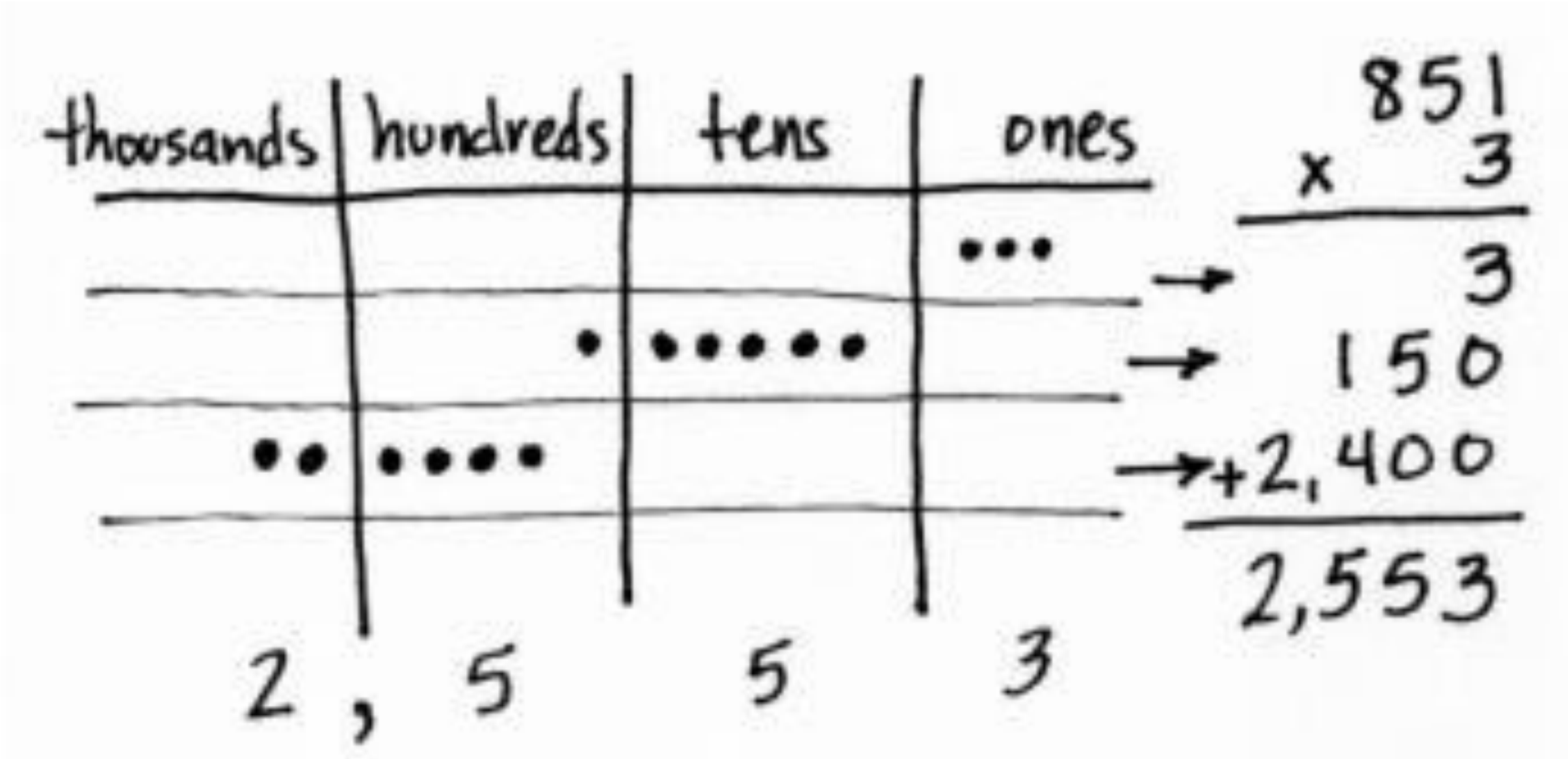
Concept Development

851	
x 3	
3	Three times one is . . .
150	Three times five tens is . . .
+ 2400	Three times eight hundreds is . . .

Concept Development

851	
x 3	
3	Three times one is . . .
150	Three times five tens is . . .
+ 2400	Three times eight hundreds is . . .
2,553	Three times 851

Concept Development



Concept Development

Problem 4:

Solve 4 x 6,379 using a partial products drawing on the place value chart

Concept Development

4 x 6,379

6,379

x 4

36 four times nine is…

Concept Development

4 x 6,379

6,379

x 4

36 four times nine is . . .

280 four times seven tens is . . .

Concept Development

4 x 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 x 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…	

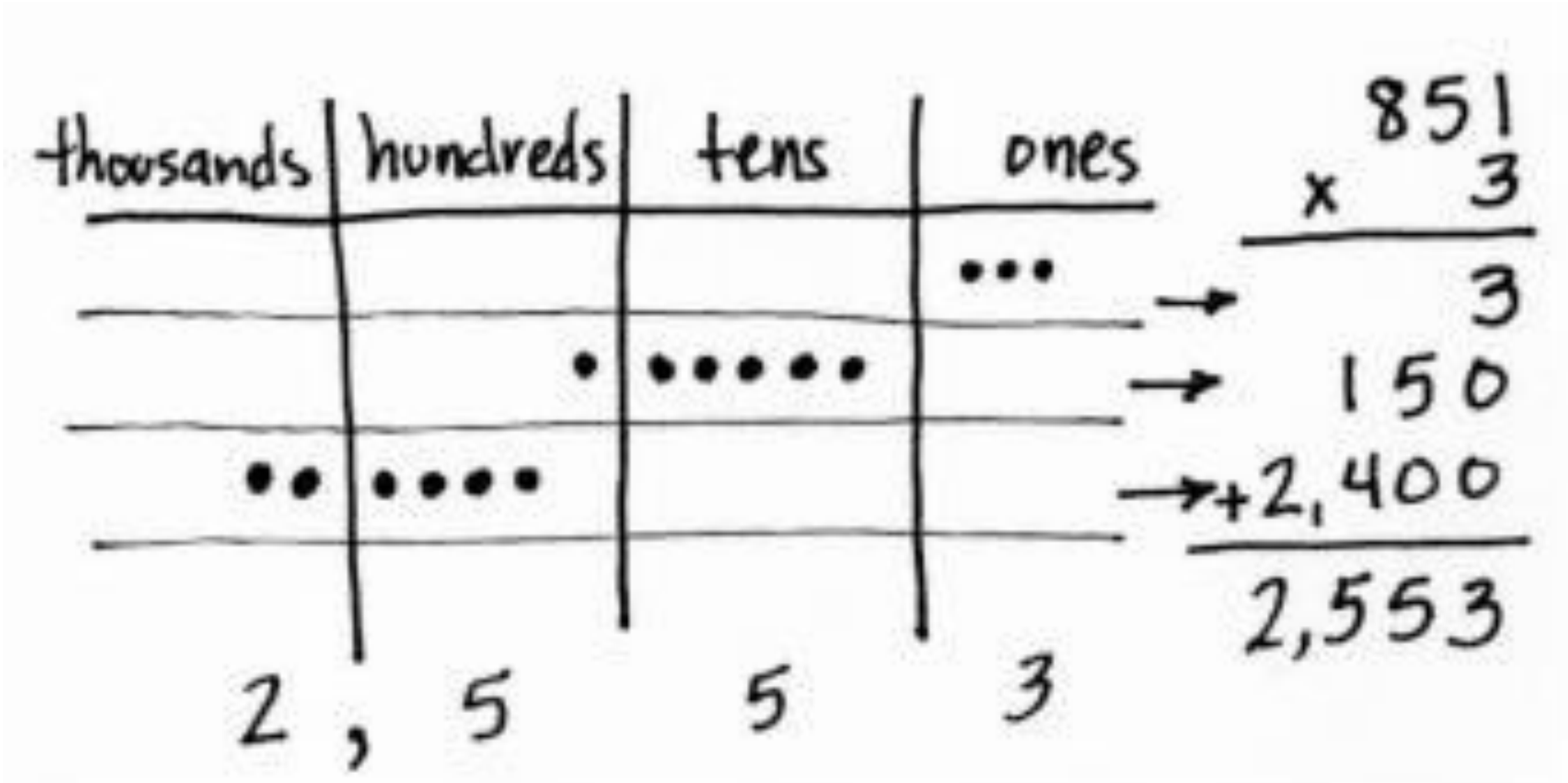
Concept Development

4 x 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 x 6,379



Concept Development

With your partner, solve

3 x 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

$1 \times$ ___ hundreds + $1 \times$ ___ ten + $1 \times$ ___ ones

```
    2  1  3
×         1
-----------
             → 1 × 3 ones
             → 1 × 1 ten
+            → 1 × 2 hundreds
-----------
```

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. $3 \times 1{,}054$