

Eureka Math

3rd Grade Module 3 Lesson 13

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Screen A

ReadyGEN™ in Action

3rd Grade
Unit 3, Module A
Lesson 1

“pop-out”

Screen B

Gr3(2) U3MAL1 Sample Lesson.pptx

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ReadyGEN™ in Action

3rd Grade
Unit 3, Module A
Lesson 1

Icons



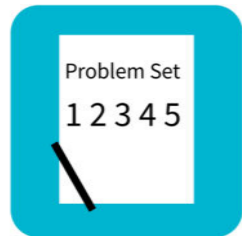
Read, Draw, Write



Learning Target



Personal White Board



Problem Set



Manipulatives Needed



Fluency



Think Pair Share



Whole Class



Individual



Partner



Small Group



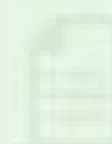
Small Group Time

Lesson 13

Objective: Identify and use arithmetic patterns to multiply.

Suggested Lesson Structure

■ Fluency Practice	(15 minutes)
■ Concept Development	(20 minutes)
■ Application Problem	(15 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



NOTES ON LESSON STRUCTURE:

The Problem Set follows immediately after the Application Problem in this lesson. The 10 minutes for the Problem Set are included in the time allotted for the Application Problem rather than the Concept Development.



I can identify and use arithmetic patterns to multiply.



Fluency Practice Sprint (15 minutes)

3.OA.7

A STORY OF UNITS

Lesson 13 Sprint 3•3

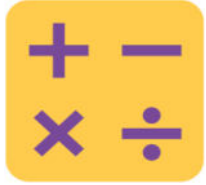
A

Number Correct: _____

Multiply or divide by 8

1.	$2 \times 8 =$	
2.	$3 \times 8 =$	
3.	$4 \times 8 =$	
4.	$5 \times 8 =$	
5.	$1 \times 8 =$	
6.	$16 \div 8 =$	
7.	$24 \div 8 =$	
8.	$40 \div 8 =$	
9.	$8 \div 1 =$	
10.	$32 \div 8 =$	
11.	$6 \times 8 =$	
12.	$7 \times 8 =$	
13.	$8 \times 8 =$	
14.	$9 \times 8 =$	
15.	$10 \times 8 =$	
16.	$64 \div 8 =$	
17.	$56 \div 8 =$	
18.	$72 \div 8 =$	
19.	$48 \div 8 =$	
20.	$80 \div 8 =$	
21.	$\underline{\quad} \times 8 = 40$	
22.	$\underline{\quad} \times 8 = 16$	

23.	$\underline{\quad} \times 8 = 80$	
24.	$\underline{\quad} \times 8 = 32$	
25.	$\underline{\quad} \times 8 = 24$	
26.	$80 \div 8 =$	
27.	$40 \div 8 =$	
28.	$8 \div 1 =$	
29.	$16 \div 8 =$	
30.	$24 \div 8 =$	
31.	$\underline{\quad} \times 8 = 48$	
32.	$\underline{\quad} \times 8 = 56$	
33.	$\underline{\quad} \times 8 = 72$	
34.	$\underline{\quad} \times 8 = 64$	
35.	$56 \div 8 =$	
36.	$72 \div 8 =$	
37.	$48 \div 8 =$	
38.	$64 \div 8 =$	
39.	$11 \times 8 =$	
40.	$88 \div 8 =$	
41.	$12 \times 8 =$	
42.	$96 \div 8 =$	
43.	$14 \times 8 =$	
44.	$112 \div 8 =$	



Fluency Practice (15 minutes)

Sprint

A STORY OF UNITS

Lesson 13 Sprint 3•3

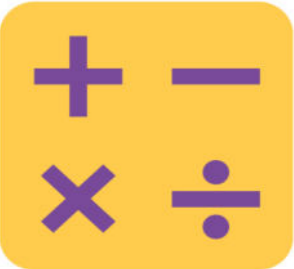
B

Number Correct: _____

Improvement: _____

Multiply or divide by 8

1.	$1 \times 8 =$		23.	$___ \times 8 = 48$	
2.	$2 \times 8 =$		24.	$___ \times 8 = 80$	
3.	$3 \times 8 =$		25.	$___ \times 8 = 24$	
4.	$4 \times 8 =$		26.	$16 \div 8 =$	
5.	$5 \times 8 =$		27.	$8 \div 1 =$	
6.	$24 \div 8 =$		28.	$80 \div 8 =$	
7.	$16 \div 8 =$		29.	$40 \div 8 =$	
8.	$32 \div 8 =$		30.	$24 \div 8 =$	
9.	$8 \div 1 =$		31.	$___ \times 8 = 64$	
10.	$40 \div 8 =$		32.	$___ \times 8 = 32$	
11.	$10 \times 8 =$		33.	$___ \times 8 = 72$	
12.	$6 \times 8 =$		34.	$___ \times 8 = 56$	
13.	$7 \times 8 =$		35.	$64 \div 8 =$	
14.	$8 \times 8 =$		36.	$72 \div 8 =$	
15.	$9 \times 8 =$		37.	$48 \div 8 =$	
16.	$56 \div 8 =$		38.	$56 \div 8 =$	
17.	$48 \div 8 =$		39.	$11 \times 8 =$	
18.	$64 \div 8 =$		40.	$88 \div 8 =$	
19.	$80 \div 8 =$		41.	$12 \times 8 =$	
20.	$72 \div 8 =$		42.	$96 \div 8 =$	
21.	$___ \times 8 = 16$		43.	$13 \times 8 =$	
22.	$___ \times 8 = 40$		44.	$104 \div 8 =$	



Group Counting

3.OA.7

Multiply by 8

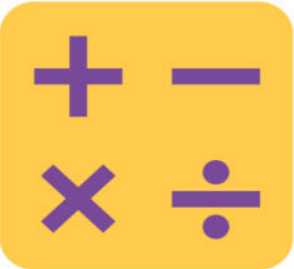
(4 minutes)

Sixes to 60

Sevens to 70

Eights to 80

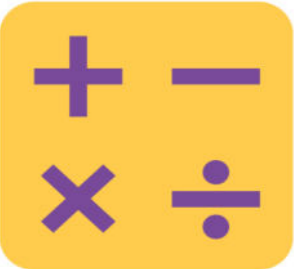
Nines to 90



Group Counting

3.OA.5

Decompose Multiples of 9 (3 minutes)

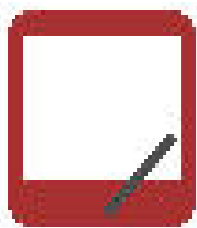


Group Counting

3.OA.5

Decompose Multiples of 9

Continue with the following possible sequence:
whole of 90 and 27 as a part,
whole of 54 and 36 as a part,
whole of 72 and 27 as a part,
and whole of 63 and 18 as a part.



Concept Development

A STORY OF UNITS

Lesson 13 Problem Set 3•3

Part 1

(20 minutes)

Name _____ Date _____

1. a. Skip-count by nine.

9, _____, 36, _____, _____, 72, _____, _____

b. Look at the *tens* place in the count-by. What is the pattern?

c. Look at the *ones* place in the count-by. What is the pattern?

2. Complete to make true statements.

a. 10 more than 0 is 10,
1 less is 9,
 $1 \times 9 =$ 9

f. 10 more than 45 is _____,
1 less is _____,
 $6 \times 9 =$ _____

b. 10 more than 9 is 19,
1 less is 18,
 $2 \times 9 =$ _____

g. 10 more than 54 is _____,
1 less is _____,
 $7 \times 9 =$ _____

c. 10 more than 18 is _____,
1 less is _____,
 $3 \times 9 =$ _____

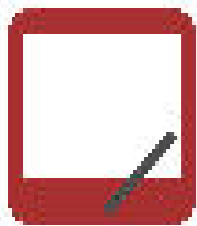
h. 10 more than 63 is _____,
1 less is _____,
 $8 \times 9 =$ _____

d. 10 more than 27 is _____,
1 less is _____,
 $4 \times 9 =$ _____

i. 10 more than 72 is _____,
1 less is _____,
 $9 \times 9 =$ _____

e. 10 more than 36 is _____,
1 less is _____,
 $5 \times 9 =$ _____

j. 10 more than 81 is _____,
1 less is _____,
 $10 \times 9 =$ _____



Concept Development

Part 2: Apply strategies to solve nines facts.

(20
minutes)

A STORY OF UNITS

Lesson 13 Problem Set 3•3

4. Each equation contains a letter representing the unknown. Find the value of each unknown. Then, write the letters that match the answers to solve the riddle.

$a \times 9 = 54$
 $a = \underline{\quad}$

$81 \div 9 = g$
 $g = \underline{\quad}$

$9 \times d = 72$
 $d = \underline{\quad}$

$a \div 9 = 10$
 $a = \underline{\quad}$

$e \times 9 = 63$
 $e = \underline{\quad}$

$9 \times n = 27$
 $n = \underline{\quad}$

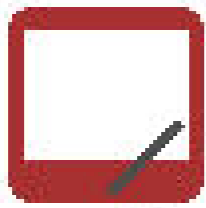
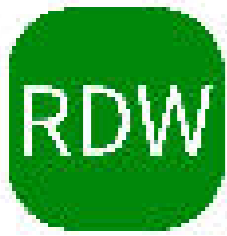
$t \times 9 = 18$
 $t = \underline{\quad}$

$9 \times s = 36$
 $s = \underline{\quad}$

$l \div 9 = 5$
 $l = \underline{\quad}$

How do you make one vanish?

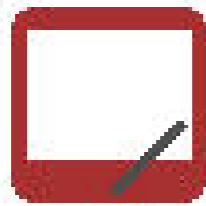
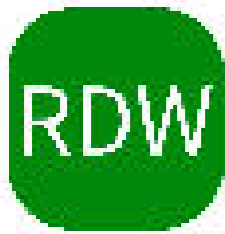
6 8 8 6 9 6 3 8 45 2 4 9 90 3 7



Application Problem

(15 minutes)

Michaela and Gilda read the same book. It takes Michaela about 8 minutes to read a chapter and Gilda about 10 minutes. There are 9 chapters in the book. How many fewer minutes does Michaela spend reading than Gilda?



Application Problem

(15 minutes)

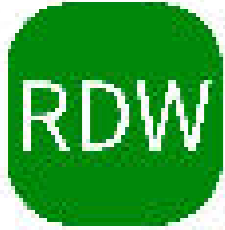
Michaela and Gilda read the same book. It takes Michaela about 8 minutes to read a chapter and Gilda about 10 minutes. There are 9 chapters in the book. How many fewer minutes does Michaela spend reading than Gilda?

$$\text{Michaela } 8 \times 9 = 72$$

$$\text{Gilda } 10 \times 9 = 90$$

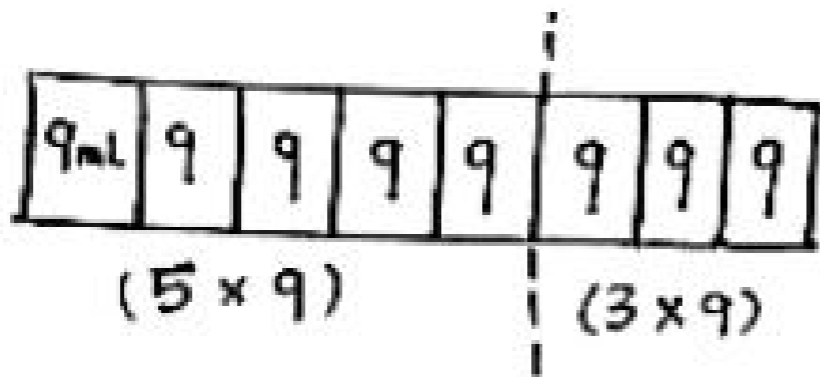
$$90 - 72 = 18$$

Michaela spends 18 fewer minutes reading.



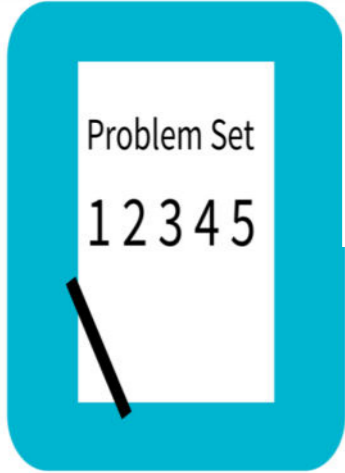
Application Problem

A scientist fills 5 test tubes with 9 milliliters of fresh water in each. She fills another 3 test tubes with 9 milliliters of salt water in each. How many milliliters of water does she use in all? Use the break apart and distribute strategy to solve.



$$\begin{aligned} 8 \times 9 &= (5+3) \times 9 \\ &= (5 \times 9) + (3 \times 9) \\ &= 45 + 27 \\ &= 42 \overset{\wedge}{\underset{\wedge}{9}} \\ &= 72 \end{aligned}$$

She used 72 mL of water in all.



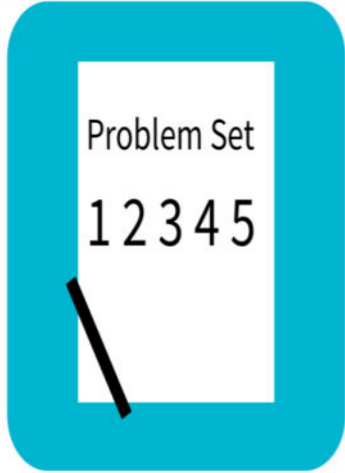
Problem Set

(10 minutes)

4. Each equation contains a letter representing the unknown. Find the value of each unknown. Then, write the letters that match the answers to solve the riddle.

How do you make one vanish?

$\frac{6}{6}$	$\frac{8}{8}$	$\frac{8}{6}$	$\frac{9}{9}$	$\frac{6}{3}$	$\frac{8}{8}$	$\frac{45}{2}$	$\frac{4}{4}$	$\frac{9}{90}$	$\frac{3}{3}$	$\frac{7}{7}$
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Problem Set

(10 minutes)

A STORY OF UNITS

Lesson 13 Problem Set 3•3

Name _____ Date _____

1. a. Skip-count by nine.

9, _____, _____, 36, _____, _____, _____, 72, _____, _____

b. Look at the *tens* place in the count-by. What is the pattern?

c. Look at the *ones* place in the count-by. What is the pattern?

2. Complete to make true statements.

a. 10 more than 0 is 10.

1 less is 9.

$1 \times 9 =$ 9

b. 10 more than 9 is 19.

1 less is 18.

$2 \times 9 =$ _____

c. 10 more than 18 is _____.

1 less is _____.

$3 \times 9 =$ _____

d. 10 more than 27 is _____.

1 less is _____.

$4 \times 9 =$ _____

e. 10 more than 36 is _____.

1 less is _____.

$5 \times 9 =$ _____

f. 10 more than 45 is _____.

1 less is _____.

$6 \times 9 =$ _____

g. 10 more than 54 is _____.

1 less is _____.

$7 \times 9 =$ _____

h. 10 more than 63 is _____.

1 less is _____.

$8 \times 9 =$ _____

i. 10 more than 72 is _____.

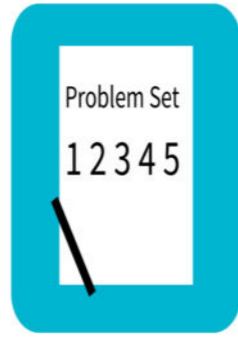
1 less is _____.

$9 \times 9 =$ _____

j. 10 more than 81 is _____.

1 less is _____.


$10 \times 9 =$ _____



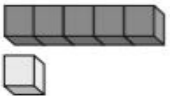
Student Debrief

Lesson Objective: Identify and use arithmetic patterns to multiply.

Name _____ Date _____

1. Each  has a value of 9. Find the value of each row. Then, add the rows to find the total.

a. $6 \times 9 =$ _____



$5 \times 9 = 45$
 $1 \times 9 =$ _____

$$\begin{aligned} 6 \times 9 &= (5 + 1) \times 9 \\ &= (5 \times 9) + (1 \times 9) \\ &= 45 + \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

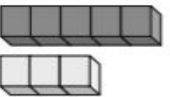
b. $7 \times 9 =$ _____



$5 \times 9 = 45$
 $\underline{\quad} \times 9 =$ _____

$$\begin{aligned} 7 \times 9 &= (5 + \underline{\quad}) \times 9 \\ &= (5 \times 9) + (\underline{\quad} \times 9) \\ &= 45 + \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

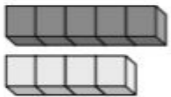
c. $8 \times 9 =$ _____



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

$$\begin{aligned} 8 \times 9 &= (5 + \underline{\quad}) \times 9 \\ &= (5 \times 9) + (\underline{\quad} \times \underline{\quad}) \\ &= 45 + \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

d. $9 \times 9 =$ _____



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

$$\begin{aligned} 9 \times 9 &= (5 + \underline{\quad}) \times 9 \\ &= (5 \times 9) + (\underline{\quad} \times \underline{\quad}) \\ &= 45 + \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

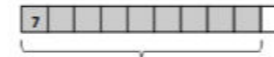
2. Find the total value of the shaded blocks.

a. $9 \times 6 =$ _____




$9 \text{ sixes} = 10 \text{ sixes} - 1 \text{ six}$
 $= \underline{\quad} - 6$
 $= \underline{\quad}$

b. $9 \times 7 =$ _____



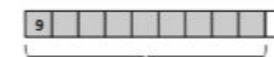
$9 \text{ sevens} = 10 \text{ sevens} - 1 \text{ seven}$
 $= \underline{\quad} - 7$
 $= \underline{\quad}$

c. $9 \times 8 =$ _____



$9 \text{ eights} = 10 \text{ eights} - 1 \text{ eight}$
 $= \underline{\quad} - 8$
 $= \underline{\quad}$

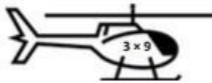


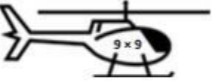
















d. $9 \times 9 =$ _____



$9 \text{ nines} = 10 \text{ nines} - 1 \text{ nine}$
 $= \underline{\quad} - \underline{\quad}$
 $= \underline{\quad}$

3. Matt buys a pack of postage stamps. He counts 9 rows of 4 stamps. He thinks of 10 fours to find the total number of stamps. Show the strategy that Matt might have used to find the total number of stamps.

4. Match.

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name _____

Date _____

1. $6 \times 9 = 54$

$8 \times 9 = 72$

What is 10 more than 54? _____

What is 10 more than 72? _____

What is 1 less? _____

What is 1 less? _____

$7 \times 9 =$ _____

$9 \times 9 =$ _____

2. Explain the pattern used in Problem 1.

Multiply.

$8 \times 1 = \underline{\quad}$ $8 \times 2 = \underline{\quad}$ $8 \times 3 = \underline{\quad}$ $8 \times 4 = \underline{\quad}$

$8 \times 5 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$

$8 \times 9 = \underline{\quad}$ $8 \times 10 = \underline{\quad}$ $8 \times 5 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$

$8 \times 5 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$ $8 \times 5 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$

$8 \times 5 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$ $8 \times 5 = \underline{\quad}$ $8 \times 10 = \underline{\quad}$

$8 \times 6 = \underline{\quad}$ $8 \times 5 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$

$8 \times 6 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$

$8 \times 6 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$

$8 \times 8 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$

$8 \times 8 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$

$8 \times 8 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$

$8 \times 9 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$

$8 \times 9 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$

$8 \times 7 = \underline{\quad}$ $8 \times 9 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$

$8 \times 9 = \underline{\quad}$ $8 \times 7 = \underline{\quad}$ $8 \times 6 = \underline{\quad}$ $8 \times 8 = \underline{\quad}$

multiply by 8 (6–10)