



## Materials List

(S) Multiply By 9 (1–5) (Pattern Sheet)

Materials: (S) Personal white board

# Eureka Math

3rd Grade  
Module 3  
Lesson 14

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Directions for customizing presentations are available on the next slide.



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**Screen A**

ReadyGEN™ in Action

3<sup>rd</sup> Grade  
Unit 3, Module A  
Lesson 1

**Screen B**

Gr3(2) U3MAL1 Sample Lesson.pptx

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3<sup>rd</sup> Grade  
Unit 3, Module A  
Lesson 1

“pop-out”

# Icons



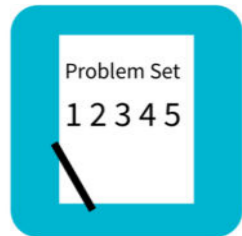
Read, Draw, Write



Learning Target



Personal White Board



Problem Set



Manipulatives Needed



Fluency



Think Pair Share



Whole Class



Individual



Partner



Small Group



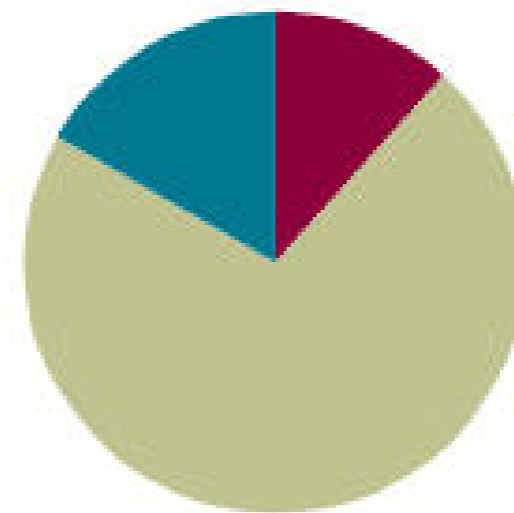
Small Group Time

# Lesson 14

Objective: Identify and use arithmetic patterns to multiply.

## Suggested Lesson Structure

■ Fluency Practice	(7 minutes)
■ Concept Development	(43 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>

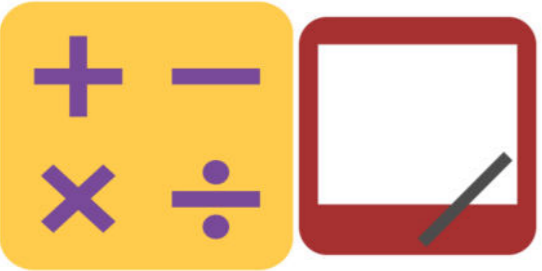


### Fluency Practice (7 minutes)

- Multiply By 9 **3.OA.7** (7 minutes)



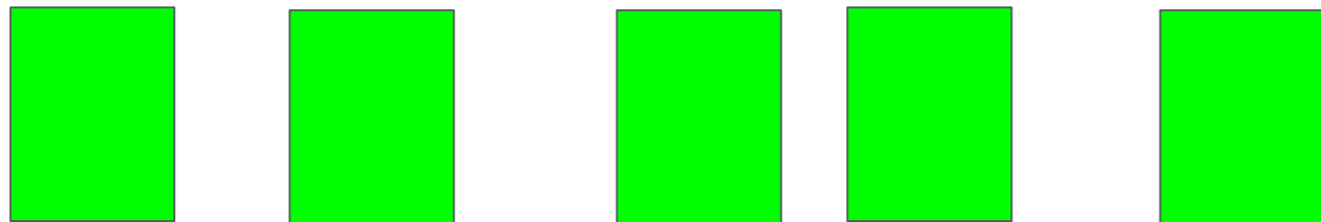
I can identify and use arithmetic patterns to multiply.

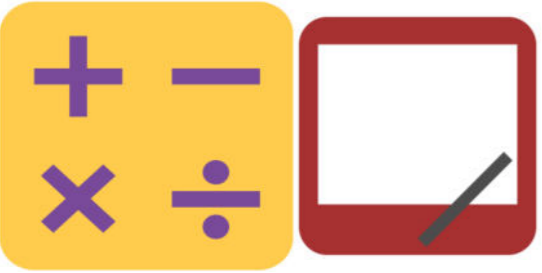


# Multiply By 9

Write  $5 \times 9 =$  \_\_\_\_\_

Let's skip-count by nines to find the answer.

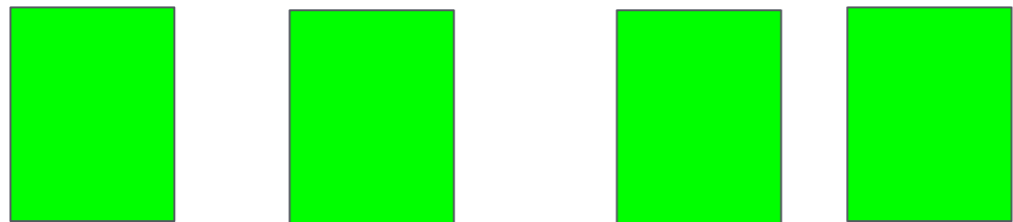


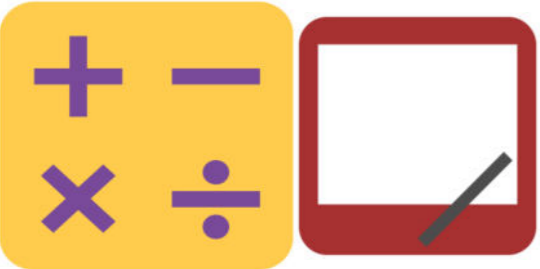


# Multiply By 9

Write  $4 \times 9 = \underline{\quad}$

Let's skip-count by nines to find the answer.





# Multiply By 9

Let's practice multiplying by 9. Be sure to work left to right across the page.

Multiply.

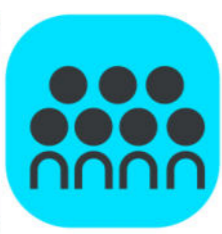
$$9 \times 1 = \underline{\quad\quad\quad} \quad 9 \times 2 = \underline{\quad\quad\quad} \quad 9 \times 3 = \underline{\quad\quad\quad} \quad 9 \times 4 = \underline{\quad\quad\quad}$$

$$9 \times 5 = \underline{\quad\quad\quad} \quad 9 \times 1 = \underline{\quad\quad\quad} \quad 9 \times 2 = \underline{\quad\quad\quad} \quad 9 \times 1 = \underline{\quad\quad\quad}$$

$$9 \times 3 = \underline{\quad\quad\quad} \quad 9 \times 1 = \underline{\quad\quad\quad} \quad 9 \times 4 = \underline{\quad\quad\quad} \quad 9 \times 1 = \underline{\quad\quad\quad}$$

$$9 \times 5 = \underline{\quad\quad\quad} \quad 9 \times 1 = \underline{\quad\quad\quad} \quad 9 \times 2 = \underline{\quad\quad\quad} \quad 9 \times 3 = \underline{\quad\quad\quad}$$





# Concept Development

Part 1: Extend the  $9 = 10 - 1$  strategy of multiplying with units of 9.

How is the  $9 = 10 - 1$  strategy, or add ten, subtract 1, from the last lesson used to solve  $2 \times 9$ ?





# Concept Development

Let's use this strategy to find  $2 \times 9$  another way.  
(Draw a  $2 \times 10$  array.) When we start with  $2 \times 10$ ,  
how many tens do we have?



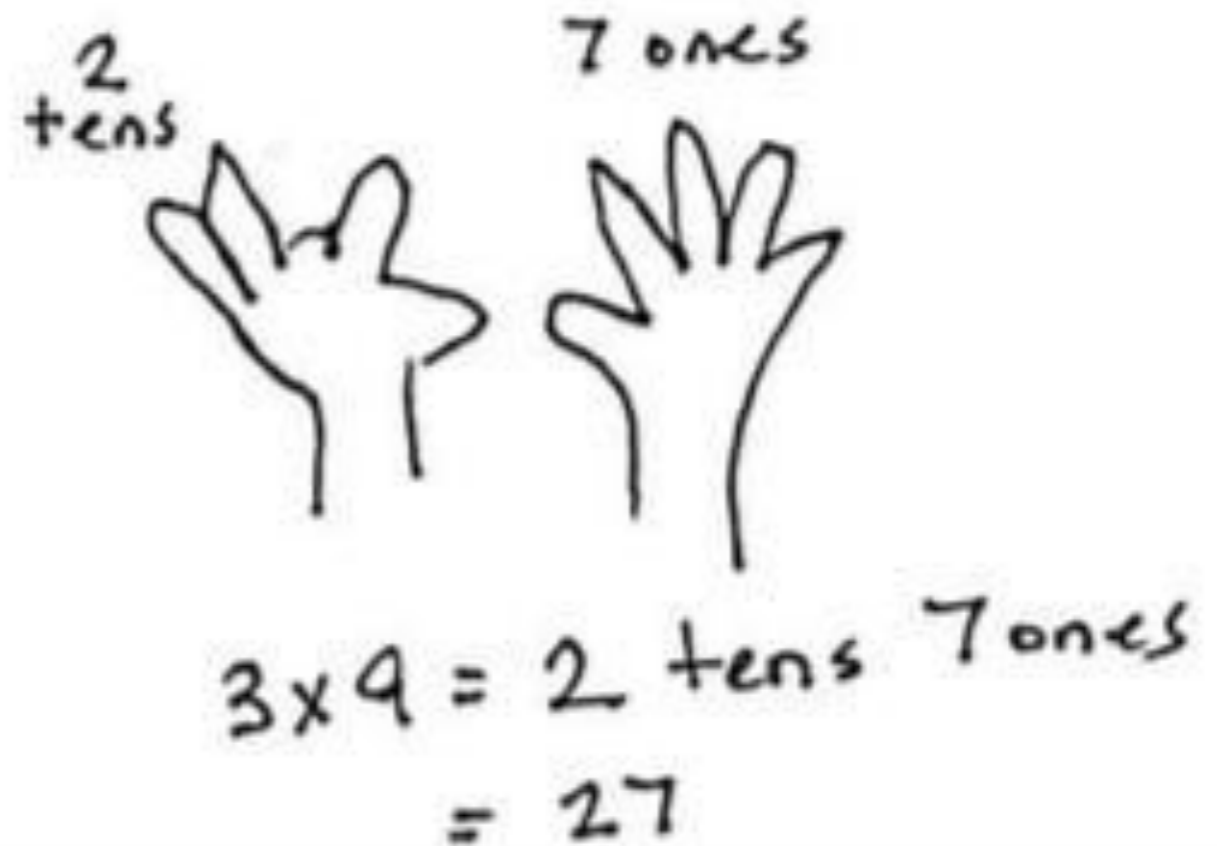
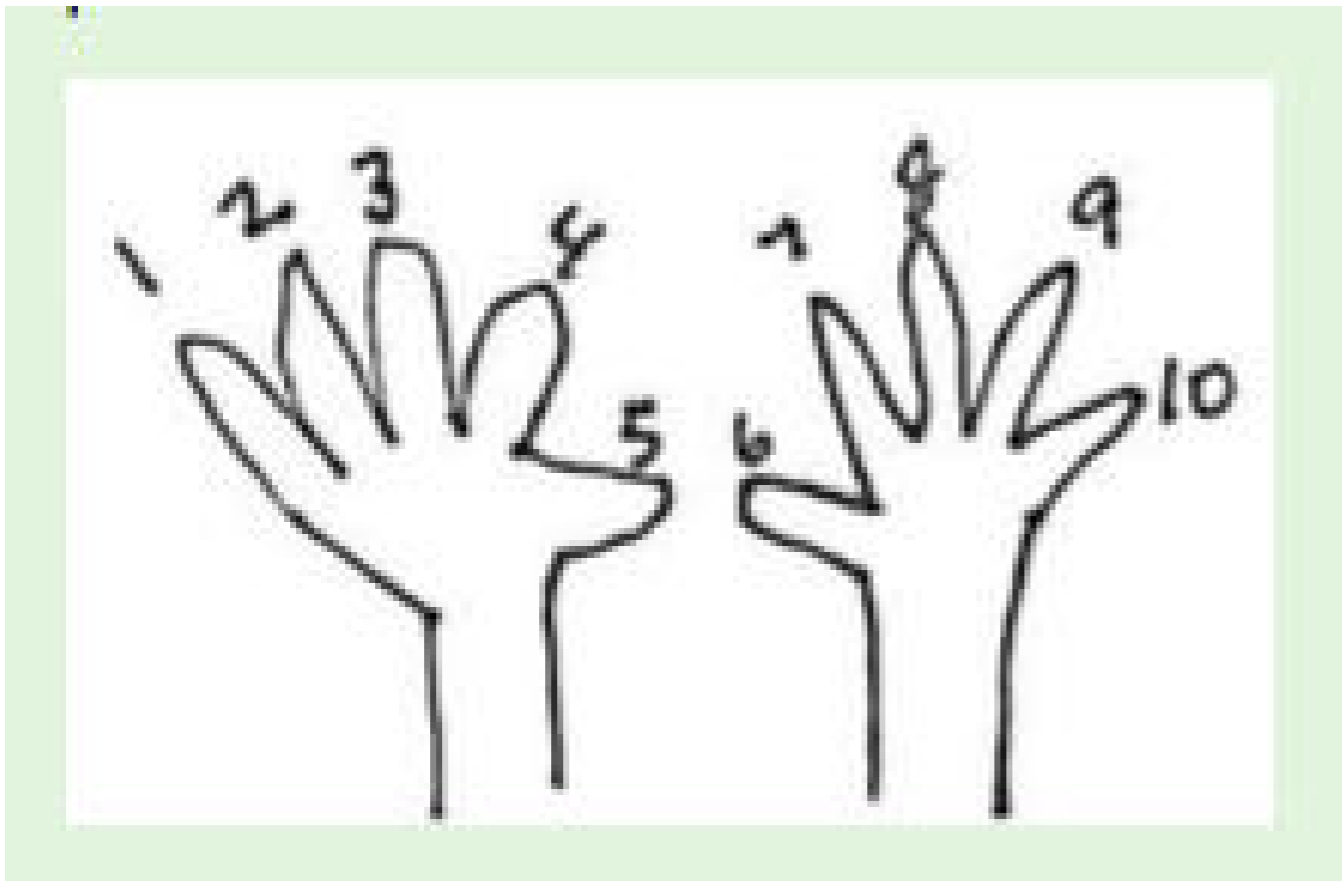


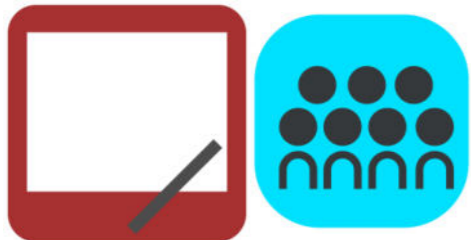
# Concept Development

Let's use the  $9 = 10 - 1$  strategy to solve  $3 \times 9$ .

Draw an array for  $3 \times 10$ . To solve, how many should we subtract?

You can use your fingers to quickly solve a nine's fact using this strategy. Put your hands out in front of you with all 10 fingers up, like this.





# Concept Development

Station 1:

Use the add 10, subtract 1 strategy to list facts from  $1 \times 9$  to  $10 \times 9$ .

Station 2:

Use  $9 \times n = (10 \times n) - (1 \times n)$ , a distributive strategy, to solve facts from  $1 \times 9$  to  $10 \times 9$ .

Station 3: Use the finger strategy to solve facts from  $1 \times 9$  to  $10 \times 9$ .

Station 4: Use the number of groups to find the digits in the tens and ones places of the product to solve facts from  $6 \times 9$  to  $9 \times 9$ .

Station 5: Use  $9 \times n = (5 \times n) + (4 \times n)$ , a distributive strategy, to solve facts from  $6 \times 9$  to  $9 \times 9$ .



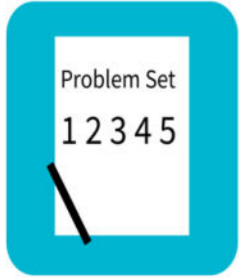
# Concept Development

Is there a strategy that is easiest for you? What makes it easier than the others?

What strategy is quickest in helping you solve a nines fact with a large number of groups, such as  $12 \times 9 = n$ ?

Which strategies would not work for such a large fact?

Which strategies could easily be used to solve a division fact?



# Problem Set

Name \_\_\_\_\_

Date \_\_\_\_\_

1. a. Multiply. Then, add the tens digit and ones digit of each product.

$1 \times 9 = 9$

$\underline{0} + \underline{9} = \underline{9}$

$2 \times 9 = 18$

$\underline{1} + \underline{8} = \underline{\quad}$

$3 \times 9 =$

$\underline{\quad} + \underline{\quad} = \underline{\quad}$

$4 \times 9 =$

$\underline{\quad} + \underline{\quad} = \underline{\quad}$

$5 \times 9 =$


$\underline{\quad} + \underline{\quad} = \underline{\quad}$

$6 \times 9 =$

$\underline{\quad} + \underline{\quad} = \underline{\quad}$

# Student Debrief



 Lesson Objective: Identify and use arithmetic patterns to multiply.

Encourage students to explain a different strategy that could be used to solve Problem 3.

Why is it important to know several strategies for solving larger multiplication facts?

Which strategies for solving nines facts can be modified to apply to a different set of facts (sixes, sevens, eights, etc.)?





# Exit Ticket

Name \_\_\_\_\_

Date \_\_\_\_\_

Donald writes  $6 \times 9 = 54$ . Explain two strategies you could use to check his work.