MULTIPLICATION

FACT FLUENCY

EXPLORE THE 3s TIMES TABLE

LESSON 8

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TODAY'S OBJECTIVE

Today we will explore the distributive property as a strategy to solve the 3s times table.

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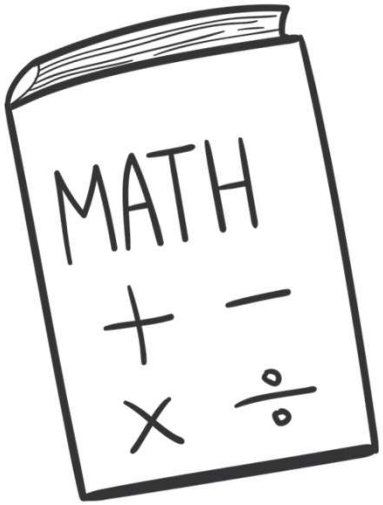
TAKE OUT YOUR

MATH JOURNALS



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Today we'll use the 2s facts and 1s facts to solve the 3s facts.

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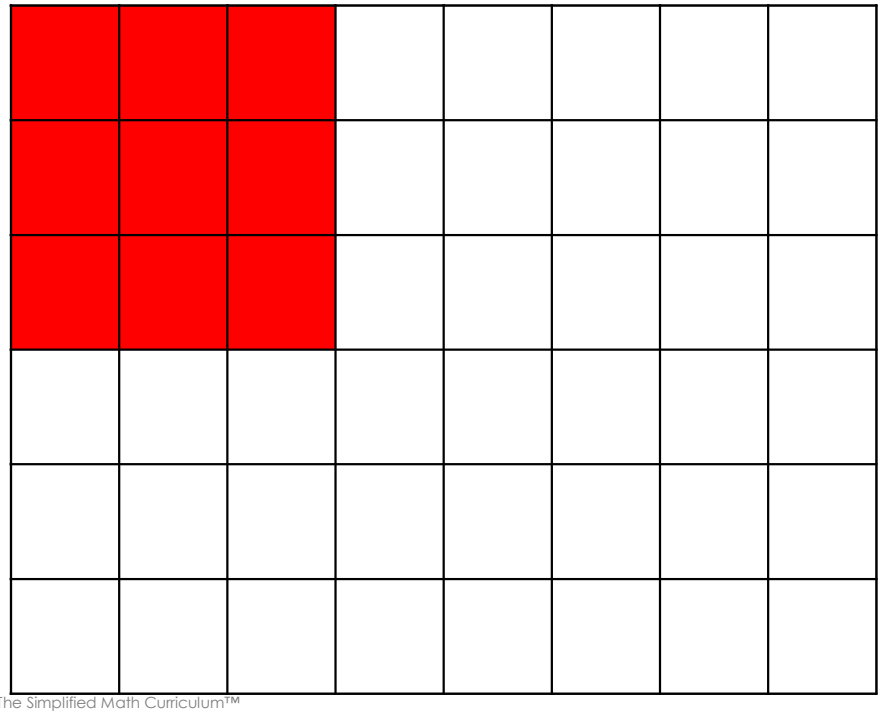
WATCH ME FIRST

I want to find the product of **3 x 3**.
I'll start by creating a model.



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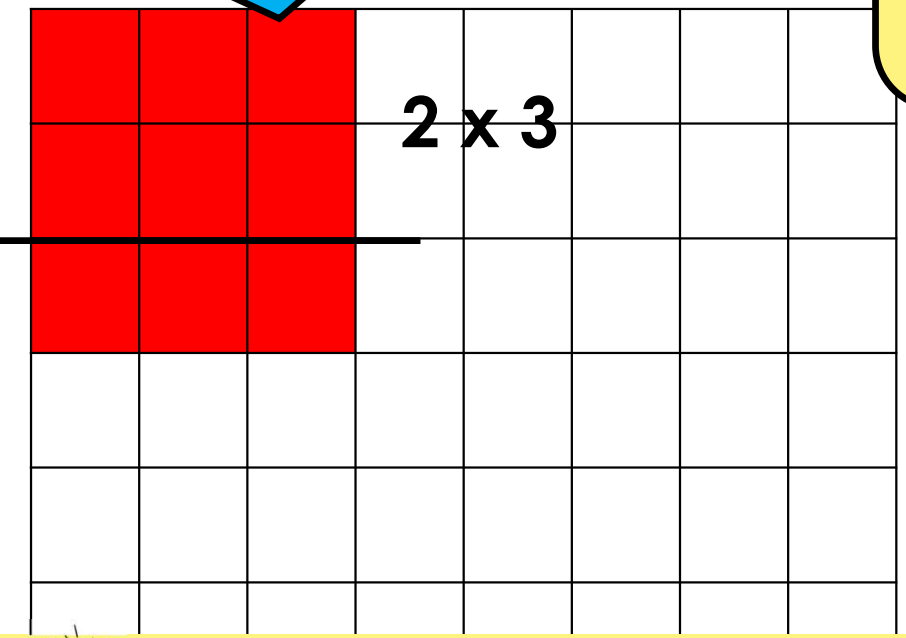
WATCH ME FIRST

Here is 2 x 3 or
2 groups of 3



My model represents 3 x 3. Inside 3 x 3 I see 2 groups of 3. 2 x 3 is a 2s fact.

I'll draw a line to separate the 2s fact.

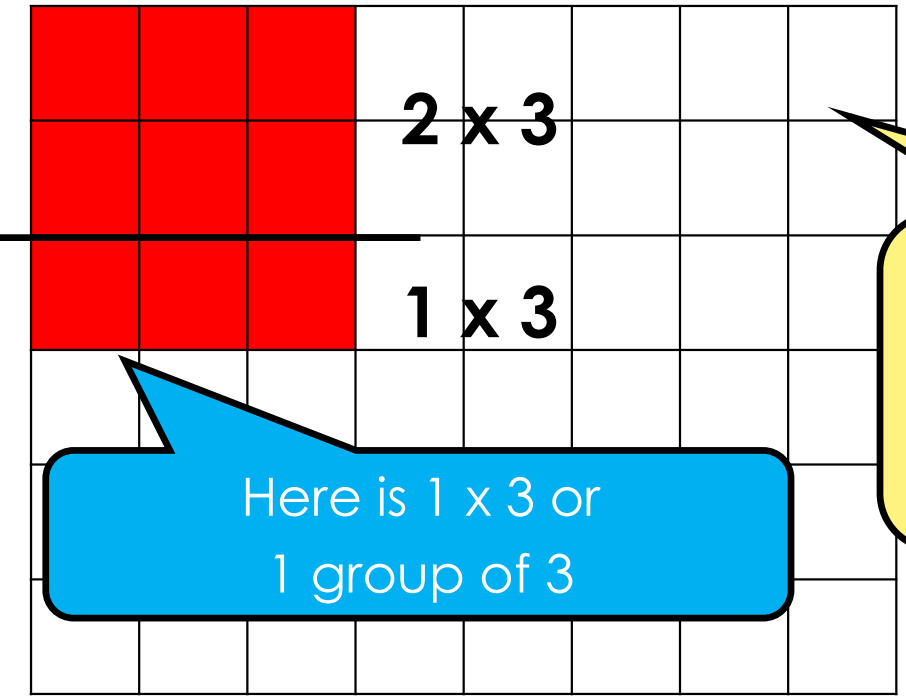
This is called **decomposing**.

Did You Know?

Decomposing is the act of breaking a quantity into parts.

WATCH ME FIRST

I also see one group of 3 inside the model.



Here is 1 x 3 or
1 group of 3

I decomposed
3 x 3 and found **two**
multiplication facts inside.
2 x 3 and 1 x 3

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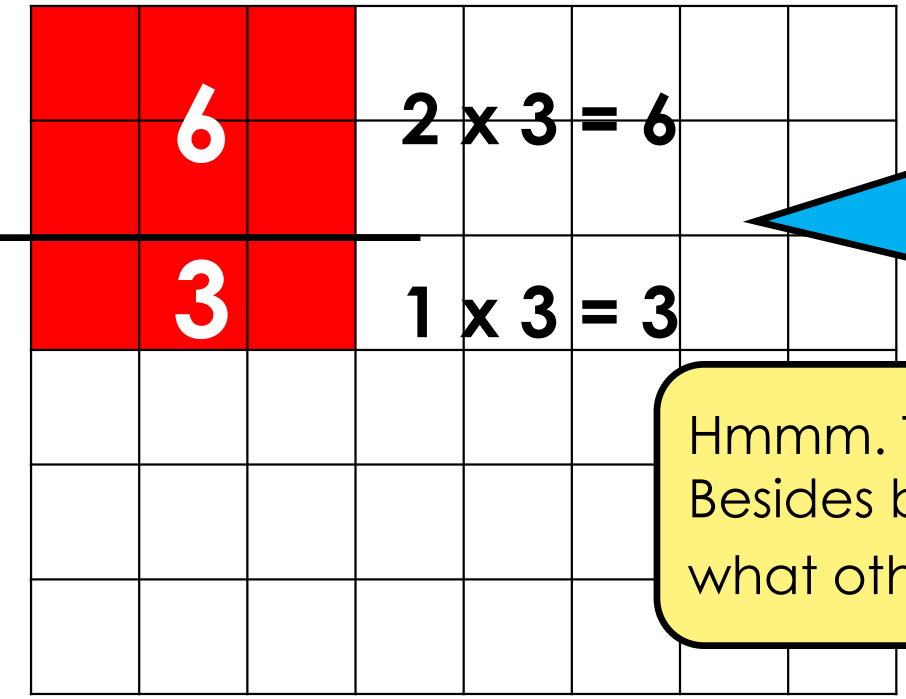
WATCH ME FIRST

Next, I'll add both products to solve.



6 + 3 = 9
The total is 9.
So... **3 x 3 = 9**

Hmmm. This looks familiar.
Besides being a 3s fact,
what other type of fact is this?

	3s Facts
x1	
x2	
x3	**3 x 3 = 9**
x4	
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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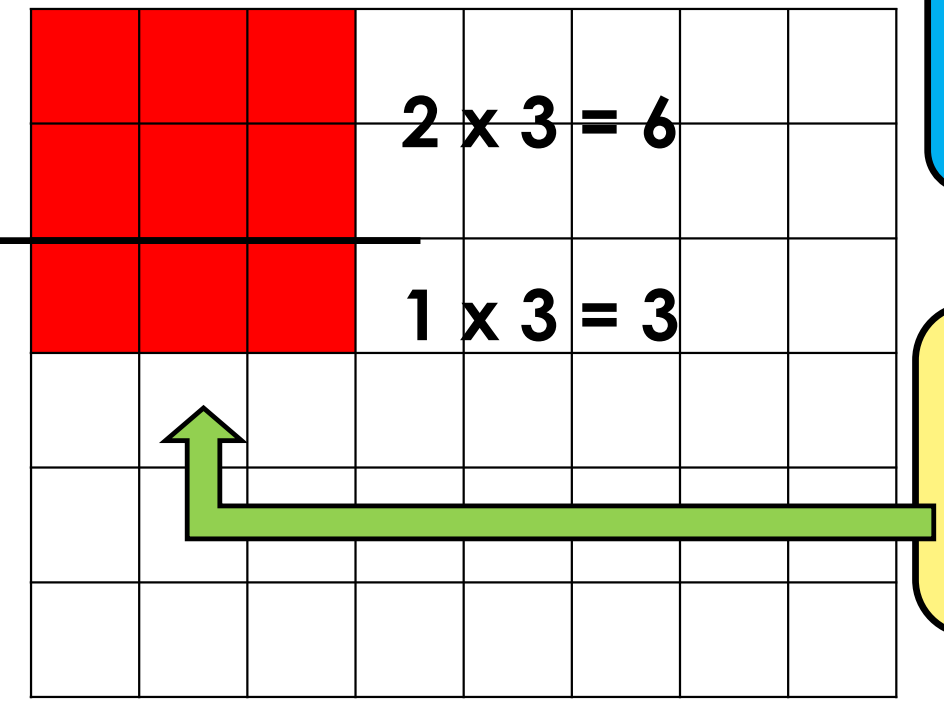
WATCH ME FIRST



3 x 3 = 9 is a square fact! How do I know?

Square facts have the same factors, AND they create squares when represented by a model!

	3s Facts
x1	
x2	
x3	3 x 3 = 9
x4	
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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LET'S WORK TOGETHER

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Let's Review!

We can solve the 3s fact by using the related 2s fact and 1s fact:

1st – Decompose the 3s fact into the related 2s fact and 1s fact.

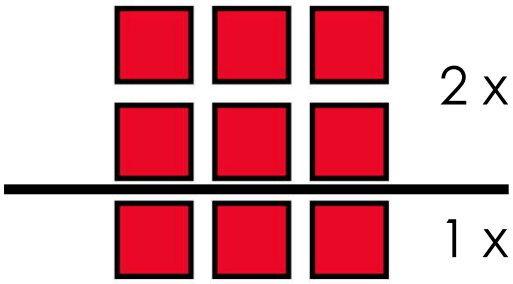
2nd – Find the product of both facts.

3rd – Solve the 3s fact by adding both products.

EXAMPLE: Find the product of **3 x 3**.

STEP 1

3 x 3 = ?



STEP 2

$3 \times 3 = \underbrace{(2 \times 3)}_{\mathbf{6}} + \underbrace{(1 \times 3)}_{\mathbf{3}}$

STEP 3

$3 \times 3 = \underbrace{(2 \times 3)}_{6} + \underbrace{(1 \times 3)}_{3}$

$3 \times 3 = \mathbf{9}$

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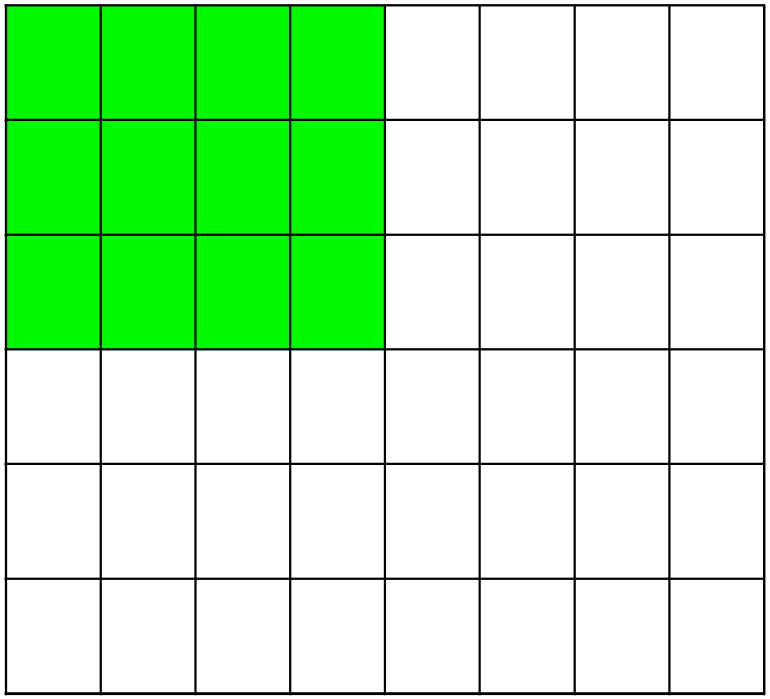
Problem #1
LET'S WORK TOGETHER

Find the product of **3 × 4**.
Draw a model in your math journal.



	3s Facts
x1	
x2	
x3	3 x 3 = 9
x4	
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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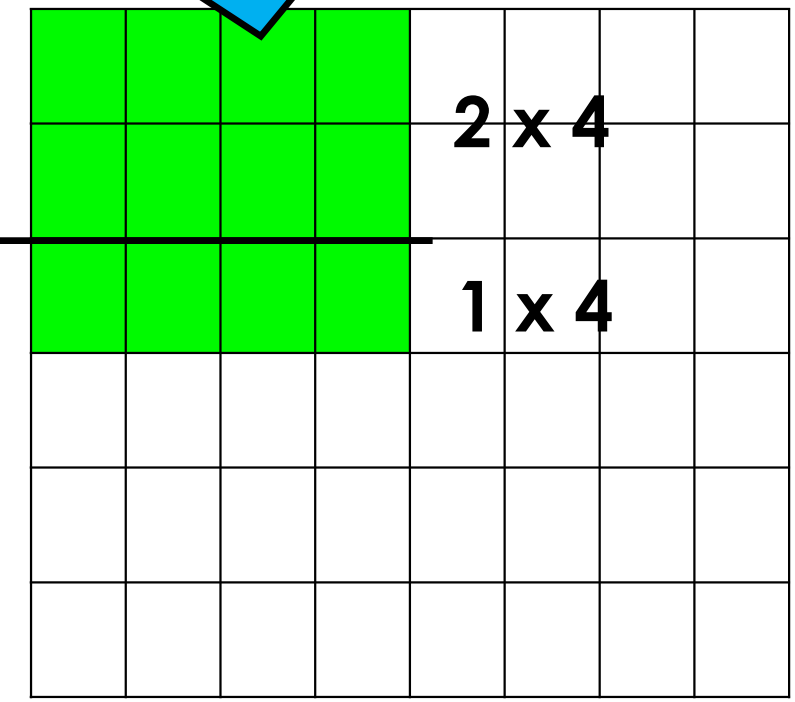
Problem #1
LET'S WORK TOGETHER

STEP 1

We need to decompose to find the related 2s fact and 1s fact.



What do we need to do first?
Record in your math journal.

	3s Facts
x1	
x2	
x3	3 x 3 = 9
x4	
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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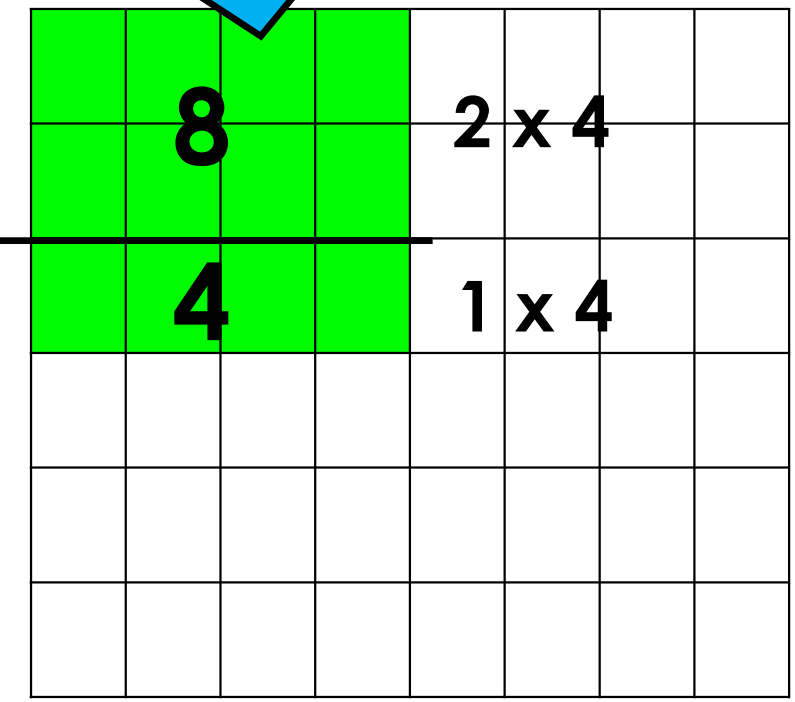
Problem #1
LET'S WORK TOGETHER

What should we do next?
Record in your math journal.

STEP 1

We need to decompose to find the related 2s fact and 1s fact.



STEP 2

Find both products.

$3 \times 4 = (2 \times 4) + (1 \times 4)$

8 **4**

	3s Facts
x1	
x2	
x3	3 x 3 = 9
x4	
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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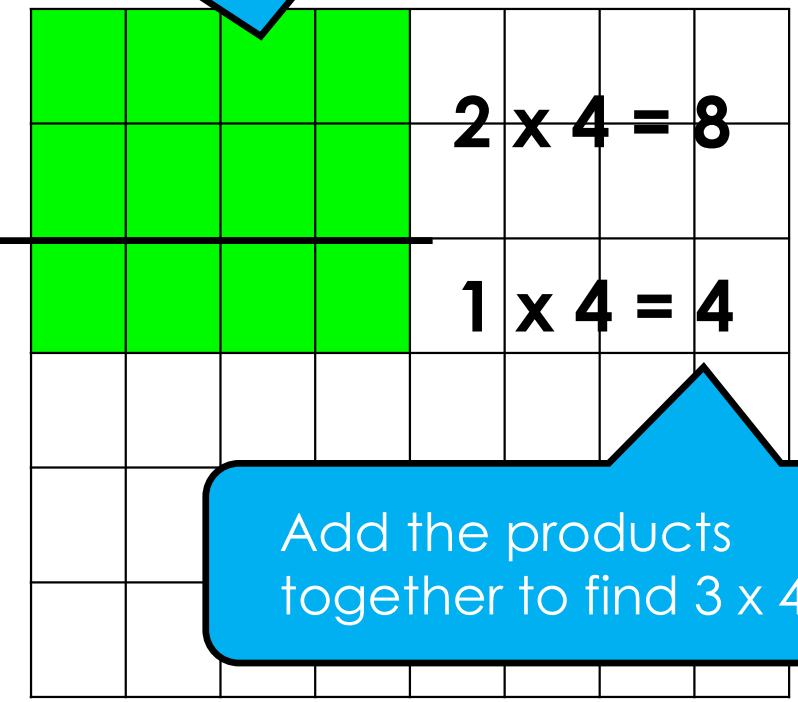
Problem #1
LET'S WORK TOGETHER

What should we do last?
Record in your math journal.

STEP 1

We need to decompose to find the related 2s and 1s facts.



Add the products together to find 3 x 4.

STEP 2

$3 \times 4 = (2 \times 4) + (1 \times 4)$

8 + 4

STEP 3

3 x 4 = 12

	3s Facts
x1	
x2	
x3	3 x 3 = 9
x4	**3 x 4 = 12**
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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Did you know that when we decompose a multiplication fact into 2 separate facts and combine the products, we are using the **distributive property**?

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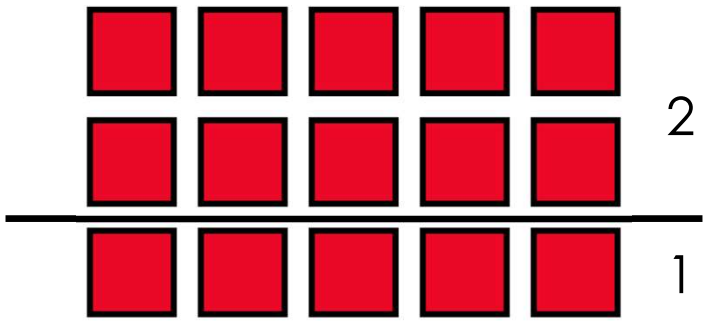
Vocabulary Highlight

The **distributive property** states, multiplying a sum by a given number is the same as multiplying each addend by the number and then adding the products.

EXAMPLE: SOLVE 3 x 5



2 x 5 = 10

1 x 5 = 5

3 x 5 = (2 x 5) + (1 x 5)

10 + 5

3 x 5 = 15

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It's important to remember that **we can use different strategies to solve problems**.

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Problem #1
LET'S WORK TOGETHER

Based on previous lessons, what other strategy can we use to find the product of **3 x 4**? Explain your answer.

We could also use the related 2s fact and then double the product. This is the strategy we learned to find the 4s fact.

	STEP 1	**STEP 2**	**STEP 3**
	3 x 2 is related to **3 x 4**	Double 6.	3 x 4 = 12
	3 x 2 = 6	6 + 6 = 12	

	3s Facts
x1	
x2	
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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Let's think of other strategies we learned in previous lessons, to solve 3 x 1 and 3 x 2.

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Problem #1
LET'S WORK TOGETHER

Based on previous lessons, what strategy can we use to find the product of **3 x 1**? Explain.

We can use the **identity property** of multiplication to solve. Any number multiplied by 1 equals that number.

So… 3 x 1 = 3 and 1 x 3 = 3 .

	3s Facts
x1	**3 x 1 = 3**
x2	
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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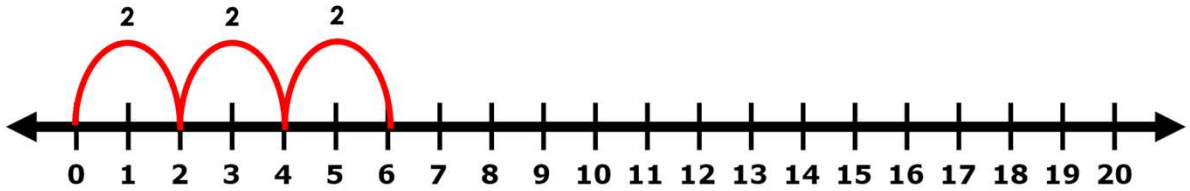
Problem #1
LET'S WORK TOGETHER

Based on previous lessons, what strategy can we use to find the product of **3 x 2**? Explain.

We can use the doubling strategy we learned to find the 2s fact.

3 + 3 = 6 then, 3 x 2 = 6 and, 2 x 3 = 6

We can also skip count by 2s.



	3s Facts
x1	3 x 1 = 3
x2	**3 x 2 = 6**
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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LET'S DO ONE MORE TOGETHER...

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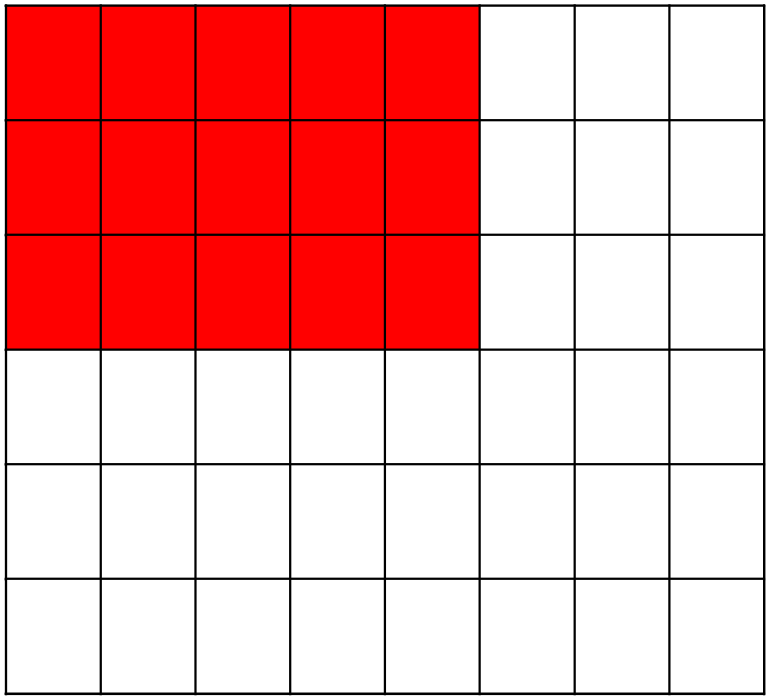
Problem #2
LET'S WORK TOGETHER

Find the product of **3 × 5**.
Draw a model in your math journal.



	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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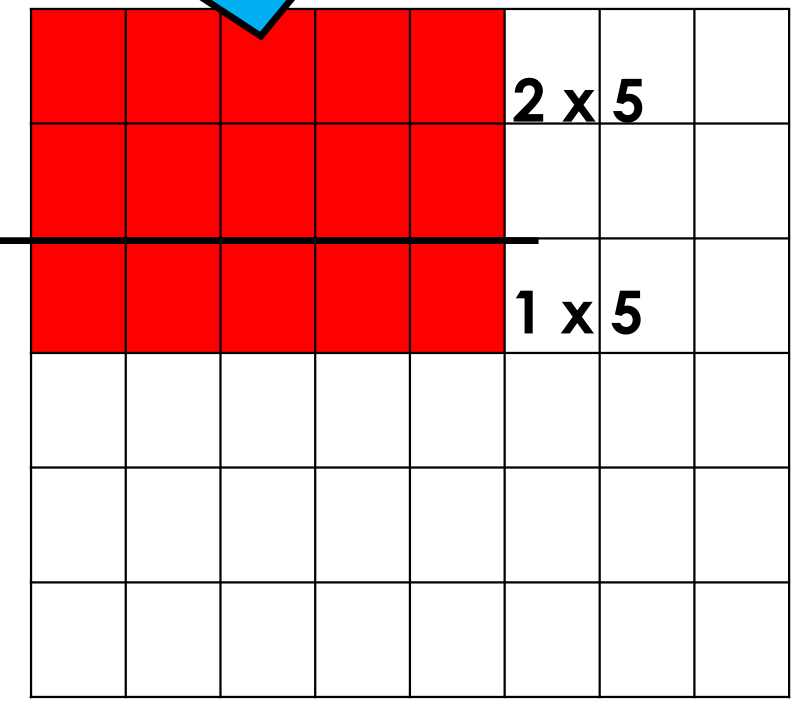
Problem #2
LET'S WORK TOGETHER

STEP 1

We need to decompose to find the related 2s fact and 1s fact.



What do we need to do first?
Record in your math journal.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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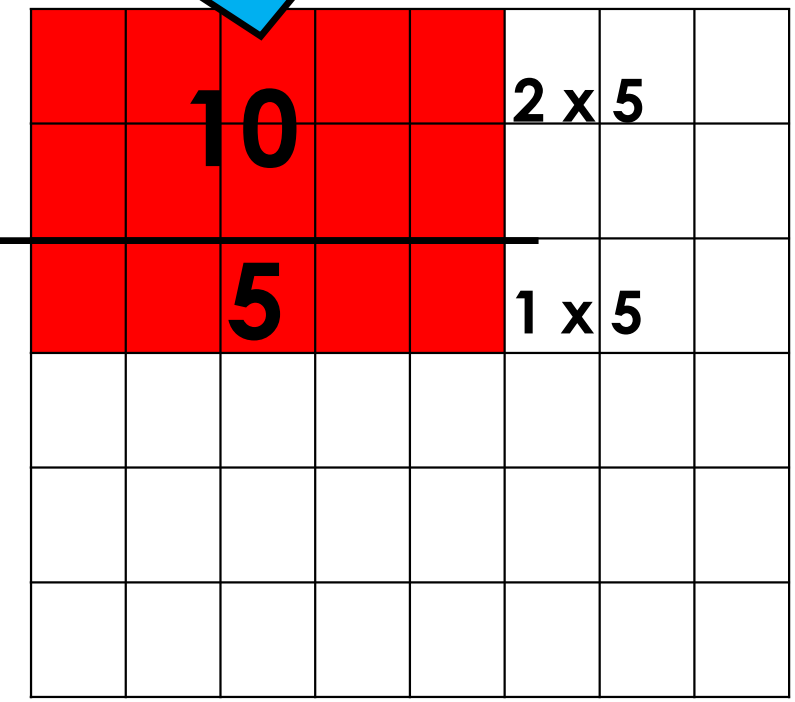
Problem #2
LET'S WORK TOGETHER

What should we do next?
Record in your math journal.

STEP 1

We need to decompose to find the related 2s and 1s facts.



STEP 2

Find both products.

$3 \times 5 = (2 \times 5) + (1 \times 5)$

10 **5**

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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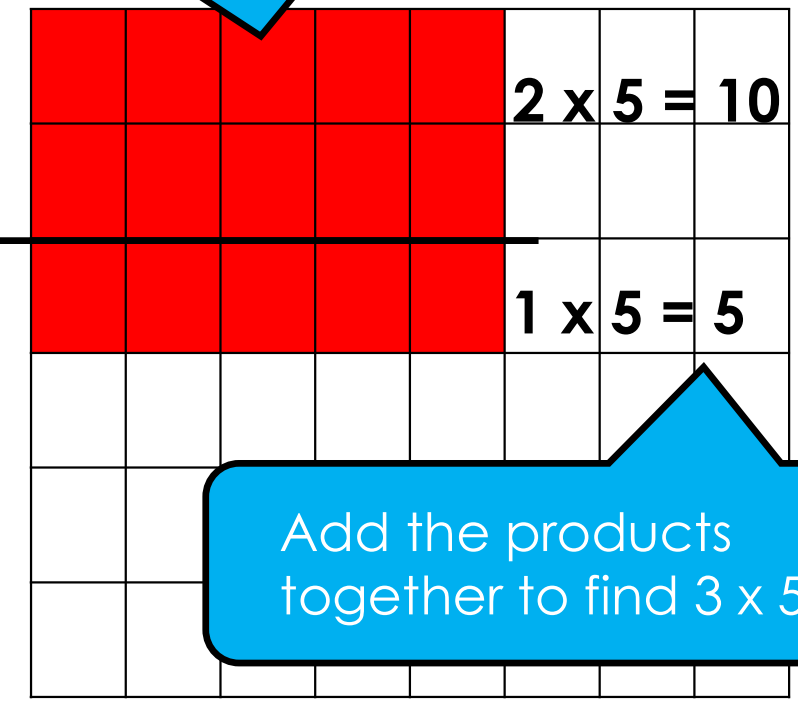
Problem #2
LET'S WORK TOGETHER

What should we do last?
Record in your math journal.

STEP 1

We need to decompose to find the related 2s fact and 1s fact.



Add the products together to find 3 x 5.

STEP 2

Find both products.

$3 \times 5 = (2 \times 5) + (1 \times 5)$

10 + 5

STEP 3

3 x 5 = 15

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	**3 x 5 = 15**
x6	
x7	
x8	
x9	
x10	
x11	
x12	

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CHECK - IN

- ❑ What did you notice?
- ❑ Can you make a connection to anything else you already know? How?
- ❑ Do you have any questions?

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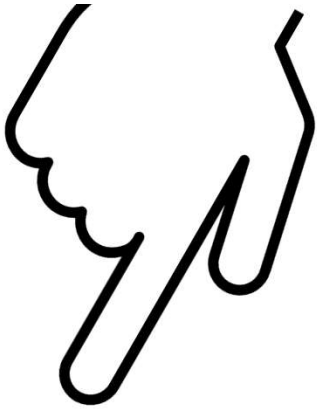

Now It's "YOUR TURN" to Solve

Don't forget to show your work!

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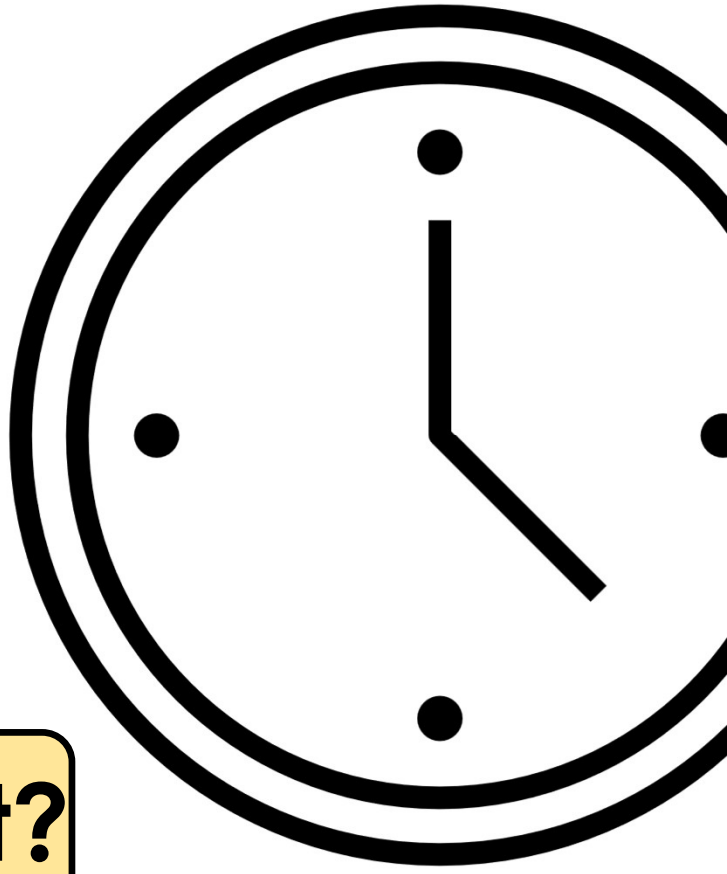
Time to Discuss and Check Your Answers



How did you solve it?

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Problem #1
YOUR TURN

Use the distributive property to find the product of 3 × 6. Fill in the chart.

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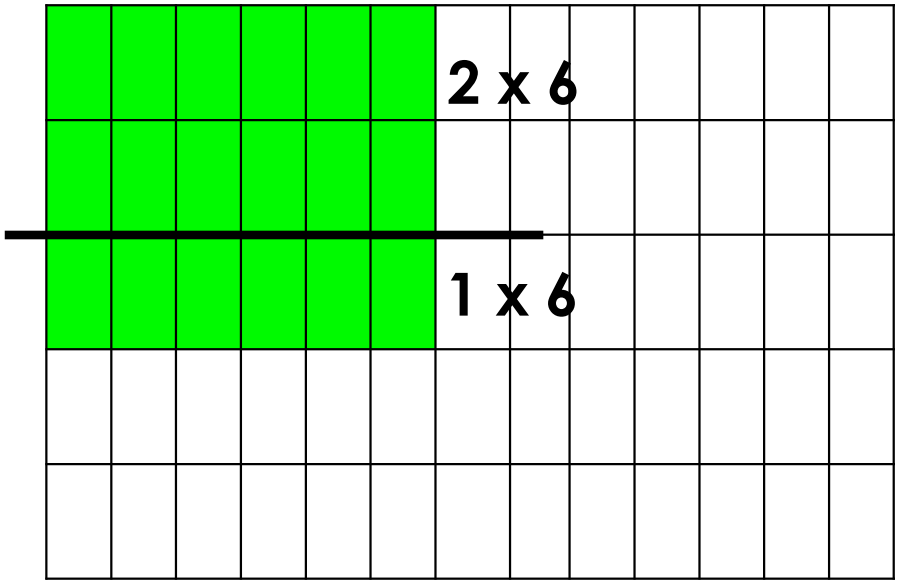
Problem #1
YOUR TURN

Use the distributive property to find the product of 3 × 6. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	**3 x 6 = 18**
x7	
x8	
x9	
x10	
x11	
x12	

DRAW



RECORD & SOLVE

3 x 6 = (2 x 6) + (1 x 6)

12 + 6

3 x 6 = 18

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Problem #2
YOUR TURN

Use the distributive property to find the product product of 3 × 7. Fill in the chart.

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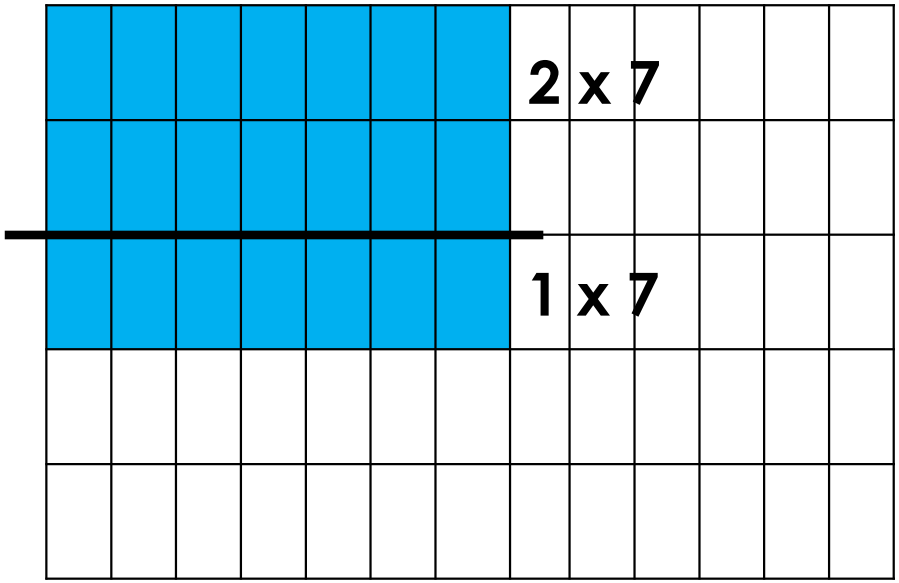
Problem #2
YOUR TURN

Use the distributive property to find the product of 3 × 7. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	3 x 6 = 18
x7	**3 x 7 = 21**
x8	
x9	
x10	
x11	
x12	

DRAW



RECORD & SOLVE

3 x 7 = (2 x 7) + (1 x 7)

14 + 7

3 x 7 = 21

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Problem #3
YOUR TURN

Use the distributive property to find the product product of 3 × 8. Fill in the chart.

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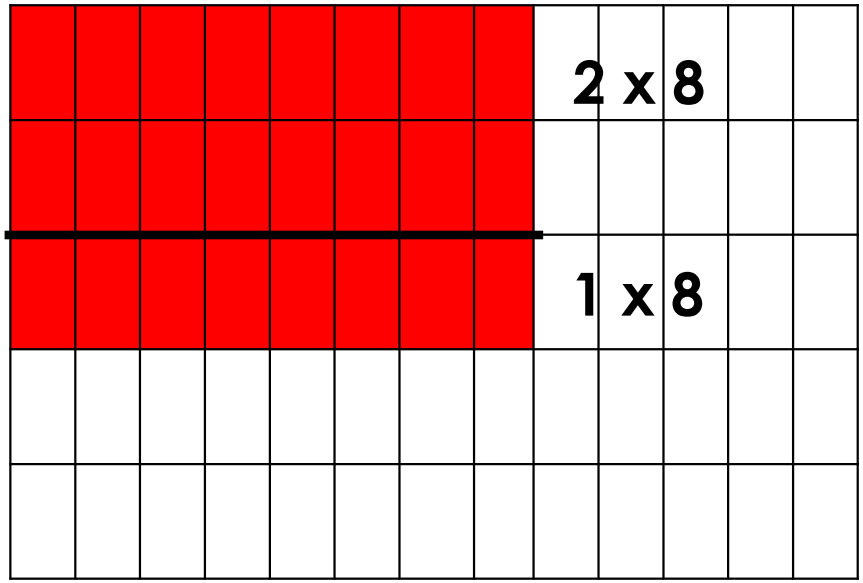
Problem #3
YOUR TURN

Use the distributive property to find the product of 3 × 8. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	3 x 6 = 18
x7	3 x 7 = 21
x8	**3 x 8 = 24**
x9	
x10	
x11	
x12	

DRAW



RECORD & SOLVE

3 x 8 = (2 x 8) + (1 x 8)

16 + 8

3 x 8 = 24

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Problem #4
YOUR TURN

Use the distributive property to find the product product of 3 × 9. Fill in the chart.

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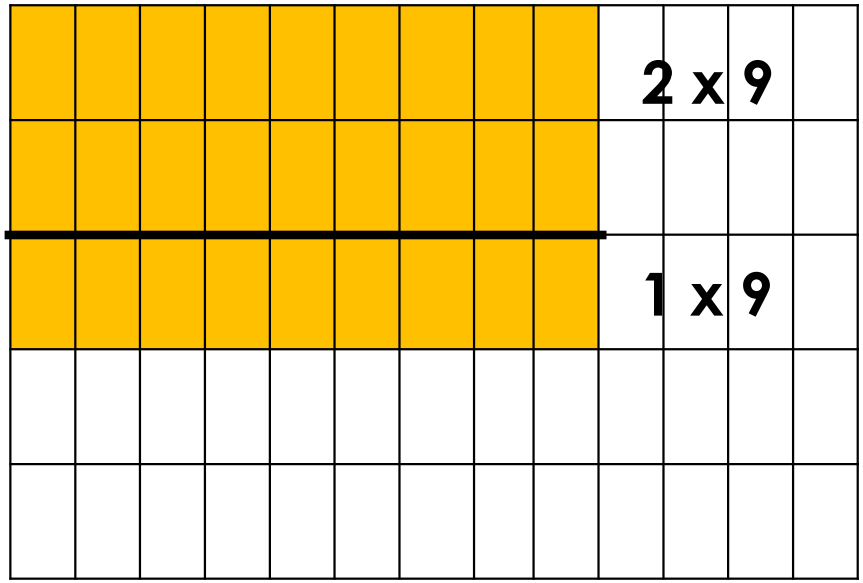
Problem #4
YOUR TURN

Use the distributive property to find the product of 3 × 9. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	3 x 6 = 18
x7	3 x 7 = 21
x8	3 x 8 = 24
x9	**3 x 9 = 27**
x10	
x11	
x12	

DRAW



RECORD & SOLVE

3 x 9 = (2 x 9) + (1 x 9)

18 + 9

3 x 9 = 27

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Problem #5
YOUR TURN

Use the distributive property to find the product product of 3 × 10. Fill in the chart.

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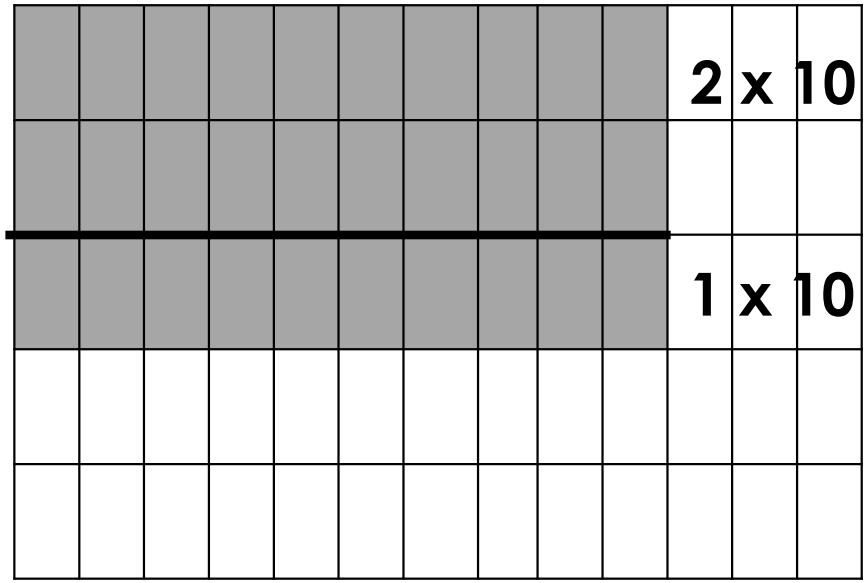
Problem #5
YOUR TURN

Use the distributive property to find the product of 3 × 10. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	3 x 6 = 18
x7	3 x 7 = 21
x8	3 x 8 = 24
x9	3 x 9 = 27
x10	**3 x 10 = 30**
x11	
x12	

DRAW



RECORD & SOLVE

3 x 10 = (2 x 10) + (1 x 10)

20 + 10

3 x 10 = 30

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Problem #6
YOUR TURN

Use the distributive property to find the product product of 3 × 11. Fill in the chart.

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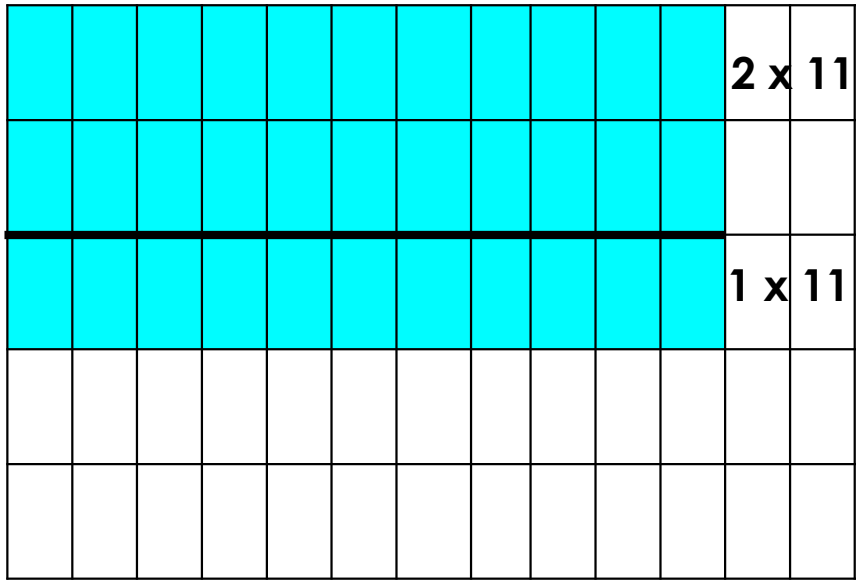
Problem #6
YOUR TURN

Use the distributive property to find the product of 3 × 11. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	3 x 6 = 18
x7	3 x 7 = 21
x8	3 x 8 = 24
x9	3 x 9 = 27
x10	3 x 10 = 30
x11	**3 x 11 = 33**
x12	

DRAW



RECORD & SOLVE

3 x 11 = (2 x 11) + (1 x 11)

22 + 11

3 x 11 = 33

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Problem #7
YOUR TURN

Use the distributive property to find the product product of 3 × 12. Fill in the chart.

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Problem #7
YOUR TURN

Use the distributive property to find the product of 3 × 12. Fill in the chart.

	3s Facts
x1	3 x 1 = 3
x2	3 x 2 = 6
x3	3 x 3 = 9
x4	3 x 4 = 12
x5	3 x 5 = 15
x6	3 x 6 = 18
x7	3 x 7 = 21
x8	3 x 8 = 24
x9	3 x 9 = 27
x10	3 x 10 = 30
x11	3 x 11 = 33
x12	**3 x 12 = 36**

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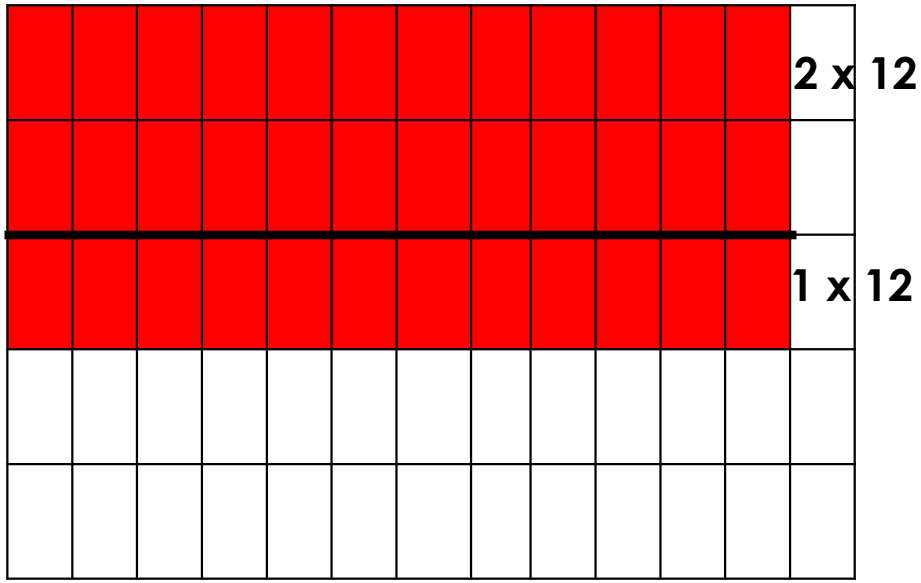

RECORD & SOLVE

3 x 12 = (2 x 12) + (1 x 12)

24 + 12

3 x 12 = 36

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Problem #8
YOUR TURN

Explain the strategy we used to solve the 3s times table.

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Problem #8
YOUR TURN

Explain the strategy we used to solve the 3s times table.

Answers May Vary

We used the distributive property to solve the 3s fact. We decomposed the 3s fact into the 2s fact and 1s fact.

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Let's Reflect

It's reflection time!

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