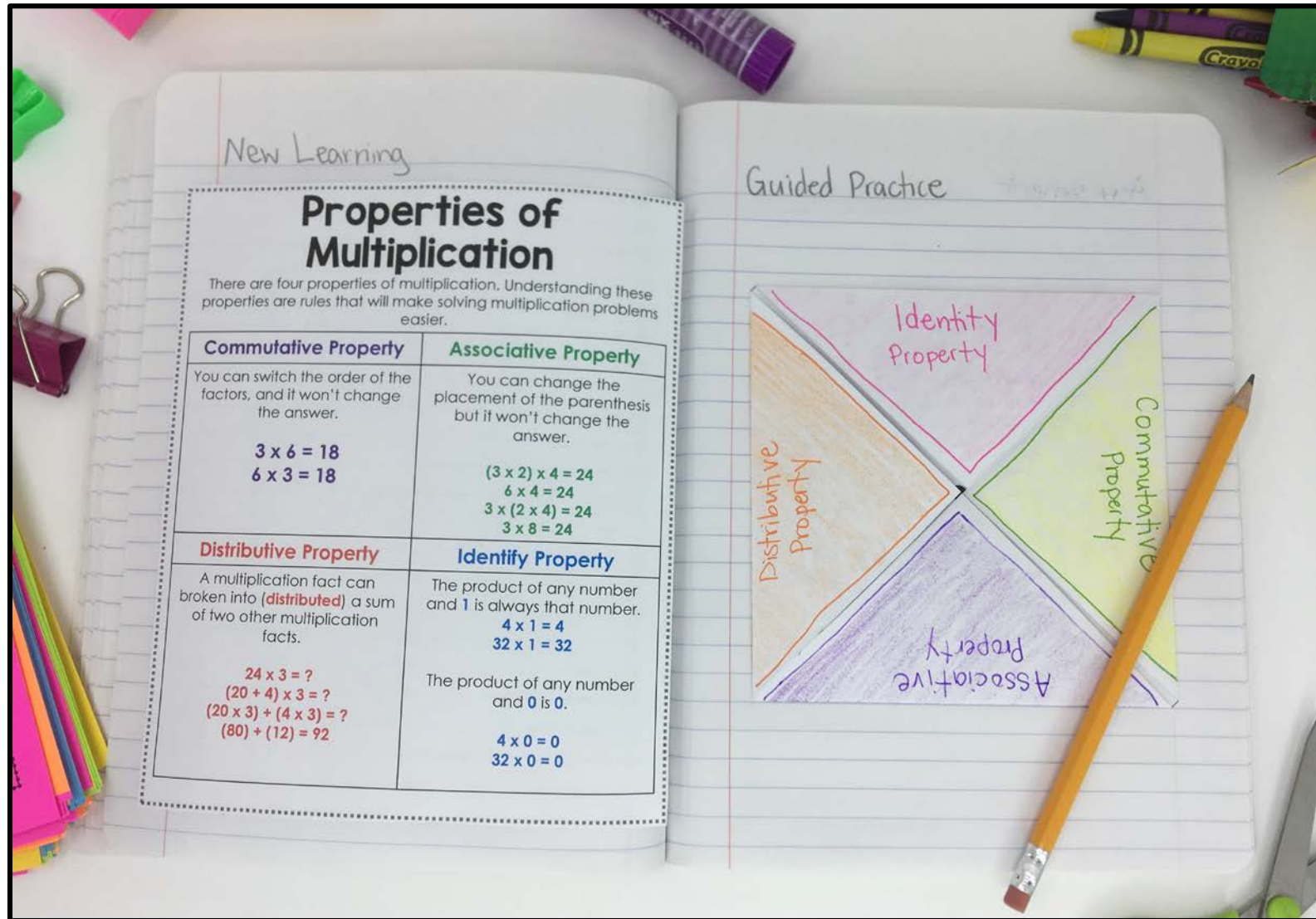


# Multiplication Interactive Math Notebook



Activities to **TEACH**, **REINFORCE** and **ASSESS** each skill



# Informative, Engaging & Interactive

Guided

The product of any number and 1 is that number.  
The product of any number and 0 is 0.

$18 \times 1 = 18$   
 $18 \times 0 = 0$

Distributive Property

Commutative Property

Associative Property

Assessment

### Quick Check Problems

1. Solve: $4 \times 7 = \frac{42}{7 \times 6 = 42}$ What property is this? Commutative	2. Solve: $(3 \times 4) \times 5 = 12 \times 5 = 60$ $3 \times (4 \times 5) = 3 \times 20 = 60$ What property is this? Associative
3. Solve: $18 \times 1 = \frac{18}{18 \times 0 = 0}$ What property is this? Identity	4. Solve: $24 \times 3 = 72$ $(20 + 4) \times 3 = 24 \times 3 = 72$ What property is this?
5. Solve: $(6 \times 7) \times 2 = 42 \times 2 = 84$ $6 \times (7 \times 2) = 6 \times 14 = 84$	6. Solve: $5 \times 4 = 20$ $5 \times 0 = 0$

Extension Activities

<b>Associative Property</b> $4 \times 8 = \underline{\quad}$ $8 \times 4 = \underline{\quad}$ $3 \times 9 = \underline{\quad}$ $9 \times 3 = \underline{\quad}$	<b>Commutative Property</b> $8 \times (2 \times 3) = \underline{\quad}$ $(8 \times 2) \times 3 = \underline{\quad}$
<b>Distributive Property</b> $18 \times 3 = \underline{\quad}$ $(10 + 8) \times 3 = \underline{\quad}$ $(10 \times 3) + (8 \times 3) = \underline{\quad}$ $54 \times 5 = \underline{\quad}$ $(50 + 4) \times 5 = \underline{\quad}$ $(50 \times 5) + (4 \times 5) = \underline{\quad}$	<b>Identity Property</b> $8 \times 1 = \underline{\quad}$ $8 \times 0 = \underline{\quad}$

Other activities include:  $26 \times 6 = \underline{\quad}$ ,  $(20 \times 4) + 6 = \underline{\quad}$ ,  $(20 \times 6) + (6 \times 6) = \underline{\quad}$ ,  $5 \times 4 = \underline{\quad}$ ,  $4 \times 5 = \underline{\quad}$ ,  $(2 \times 3) \times 7 = \underline{\quad}$ ,  $2 \times (3 \times 7) = \underline{\quad}$ ,  $62 \times 4 = \underline{\quad}$ ,  $(60 + 2) \times 4 = \underline{\quad}$ ,  $(60 \times 4) + 2 = \underline{\quad}$ ,  $9 \times 1 = \underline{\quad}$ ,  $(9 \times 1) \times 5 = \underline{\quad}$ ,  $26 \times 4 = \underline{\quad}$ ,  $(20 \times 4) + 6 = \underline{\quad}$ ,  $(20 \times 6) + (6 \times 6) = \underline{\quad}$ ,  $(2 \times 3) \times 7 = \underline{\quad}$ ,  $2 \times (3 \times 7) = \underline{\quad}$ ,  $(4 \times 3) \times 5 = \underline{\quad}$ ,  $4 \times (3 \times 5) = \underline{\quad}$ ,  $54 \times 5 = \underline{\quad}$ ,  $(50 + 4) \times 5 = \underline{\quad}$ ,  $(50 \times 5) + (4 \times 5) = \underline{\quad}$ ,  $24 \times 1 = \underline{\quad}$ ,  $24 \times 0 = \underline{\quad}$ .

New Learning

## Properties of Multiplication

There are four properties of multiplication. Understanding these properties are rules that will make solving multiplication problems easier.

<b>Commutative Property</b> You can switch the order of the factors, and it won't change the answer. $3 \times 6 = 18$ $6 \times 3 = 18$	<b>Associative Property</b> You can change the placement of the parenthesis but it won't change the answer. $(3 \times 2) \times 4 = 24$ $6 \times 4 = 24$ $3 \times (2 \times 4) = 24$ $3 \times 8 = 24$
<b>Distributive Property</b> A multiplication fact can be broken into (distributed) a sum of two other multiplication facts. $24 \times 3 = ?$ $(20 + 4) \times 3 = ?$ $(20 \times 3) + (4 \times 3) = ?$ $(80) + (12) = 92$	<b>Identity Property</b> The product of any number and 1 is always that number. $4 \times 1 = 4$ $32 \times 1 = 32$ The product of any number and 0 is 0. $4 \times 0 = 0$ $32 \times 0 = 0$

Commutative Property

Associative Property

Identity Property

Distributive Property

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

$4 \times 8 = \underline{\quad}$   
 $8 \times 4 = \underline{\quad}$

$8 \times (2 \times 3) = \underline{\quad}$   
 $(8 \times 2) \times 3 = \underline{\quad}$

$8 \times 1 = \underline{\quad}$   
 $8 \times 0 = \underline{\quad}$

$45 \times 1 = \underline{\quad}$   
 $45 \times 0 = \underline{\quad}$

$18 \times 3 = \underline{\quad}$   
 $(10 + 8) \times 3 = \underline{\quad}$   
 $(10 \times 3) + (8 \times 3) = \underline{\quad}$

$62 \times 4 = \underline{\quad}$   
 $(60 + 2) \times 4 = \underline{\quad}$   
 $(60 \times 4) + (2 \times 4) = \underline{\quad}$

$26 \times 6 = \underline{\quad}$   
 $(20 \times 4) + 6 = \underline{\quad}$   
 $(20 \times 6) + (6 \times 6) = \underline{\quad}$

$(2 \times 3) \times 7 = \underline{\quad}$   
 $2 \times (3 \times 7) = \underline{\quad}$

$(4 \times 3) \times 5 = \underline{\quad}$   
 $4 \times (3 \times 5) = \underline{\quad}$

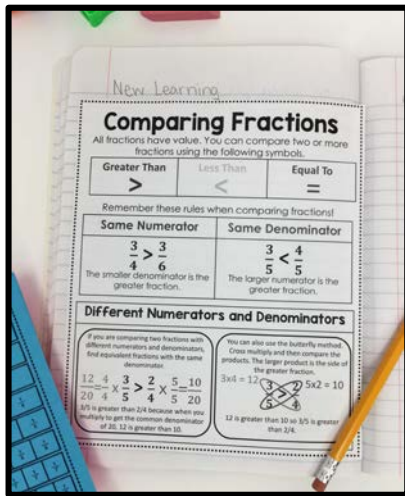
$54 \times 5 = \underline{\quad}$   
 $(50 + 4) \times 5 = \underline{\quad}$   
 $(50 \times 5) + (4 \times 5) = \underline{\quad}$

$24 \times 1 = \underline{\quad}$   
 $24 \times 0 = \underline{\quad}$

# What's Included?

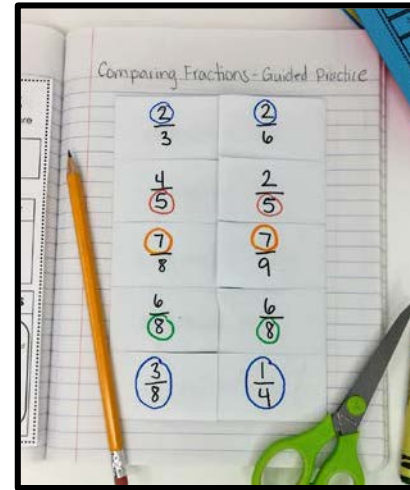
Each skill has these four elements:

## Anchor Chart



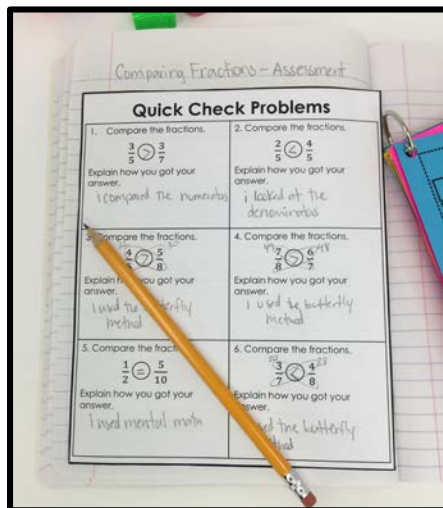
Great tool to introduce new math skill to students. Student friendly and fits perfectly in journals.

## Interactive Foldable



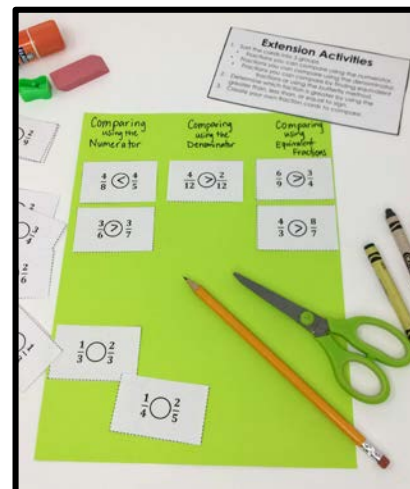
Works great as guided practice and gives students an interactive opportunity to practice the new skill.

## Exit Ticket



Great way to assess students at the end of the lesson or to use as a spiral review a few weeks after the lesson is taught.

## Extension Activity



Works great as early finisher work or in a math work station.

# What Skills are Covered?

## Properties of Multiplication

There are four properties of multiplication. Understanding these properties are rules that will make solving multiplication problems easier.

<b>Commutative Property</b> You can switch the order of the factors, and it won't change the answer.  $3 \times 6 = 18$ $6 \times 3 = 18$	<b>Associative Property</b> You can change the placement of the parenthesis but it won't change the answer.  $(3 \times 2) \times 4 = 24$ $6 \times 4 = 24$ $3 \times (2 \times 4) = 24$ $3 \times 8 = 24$
<b>Distributive Property</b> A multiplication fact can be broken into (distributed) a sum of two other multiplication facts.  $24 \times 3 = ?$ $(20 + 4) \times 3 = ?$ $(20 \times 3) + (4 \times 3) = ?$ $(60) + (12) = 92$	<b>Identify Property</b> The product of any number and 1 is always that number. $4 \times 1 = 4$ $32 \times 1 = 32$  The product of any number and 0 is 0.  $4 \times 0 = 0$ $32 \times 0 = 0$

Properties of Multiplication

## Multiplying by Multiples of 10.

When you multiply a number by 10, you add a zero to the end of the factor you are multiplying.

$8 \times 10 = 80$

When you multiply a number by a multiple of 10, you multiply the factor by the digit in the tens place and add a zero to the end.

$8 \times 20 = 160$   
Think:  $8 \times 2 = 16$ . Add a 0 = 160

When you multiply a number by 100, you add two zeros to the end of the factor you are multiplying.

$8 \times 100 = 800$

When you multiply a number by a multiple of 100, you multiply the factor by the digit in the hundreds place and add two zeros to the end.

$8 \times 400 = 3,200$   
Think:  $8 \times 4 = 32$ . Add two 0s = 3,200

Multiplying by Multiples of 10

## Finding Products Using Arrays

You can use arrays to help you multiply. An array has equal rows with equal numbers in each row.

This is a row. Each row has the same number of circles.

This is a column. Each column has the same number of circles.

You can find the total of the array different ways.

You can count the circles.	You can add up the circles in each row.
20	$5 + 5 + 5 + 5 = 20$
You can add up the circles in each column.	You can multiply the rows by the columns.
$4 + 4 + 4 + 4 + 4 = 20$	$5 \times 4 = 20$

Finding Product Using Arrays

## Standard Algorithm

An algorithm is a set of steps or rules that you can follow to solve a basic mathematical problem. These are the steps for the standard algorithm for multiplication.

<b>Step 1:</b> $154$ $\times 28$ 1,232	Multiply the top number by the digit in the ones place.
<b>Step 2:</b> $154$ $\times 28$ 1,232 0	Put a zero as a place holder.
<b>Step 3:</b> $154$ $\times 28$ 1,232 3,080	Multiply the top number by the digit in the tens place.
<b>Step 4:</b> $154$ $\times 28$ 1,232 + 3,080 4,312	Add the numbers together.

Standard Algorithm

## Partial Products & Box Method

There are other strategies you can use to solve multiplication problems. You can use the Box Method or the Partial Products.

Box Method	Partial Products
$23 \times 42$ $\begin{array}{r l} 20 & + & 3 \\ \hline 20 \times 40 = 800 & 3 \times 40 = 120 \\ + & \\ 20 \times 2 = 40 & 3 \times 2 = 6 \\ \hline 800 + 120 + 40 + 6 \end{array}$	$23 \times 42$ $\begin{array}{r} 42 \text{ think } (40 + 2) \\ \times 23 \text{ think } (20 + 3) \\ \hline 6 (3 \times 2) \\ 120 (3 \times 40) \\ 40 (20 \times 2) \\ + 800 (20 \times 40) \\ \hline 966 \end{array}$
<b>Step 1:</b> Expand each of the factors you are multiplying. <b>Step 2:</b> Set up the numbers above the boxes. <b>Step 3:</b> Multiply the numbers in the rows and columns. <b>Step 4:</b> Add all of the products found in each of the boxes to get the total.	<b>Step 1:</b> Multiply by the ones. <b>Step 2:</b> Multiply by the tens. <b>Step 3:</b> List all the partial products. <b>Step 4:</b> Add all of the partial products together to get the total.

Partial Products & Box Method

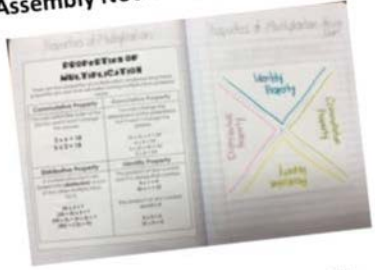


# Additional Features


- Includes **assembly notes** and **directions** for each entry
- Includes **answer key** for each exit ticket
- Includes **black and white** or **color options** for each anchor chart

**Properties of Multiplication – Assembly Notes & Directions**


**Anchor Chart**  
Make enough copies for students. Have students cut and paste in their math journal. Review anchor chart with students as you would a full size anchor chart. Students will be able to reference back to this page if they have questions about place value.



**Foldable - Outside**



**Foldable - Inside**



Created by Two Teachers with Style © 2015

**Quick Check Problems - Key**

1. Solve:  
 $6 \times 7 = 42$   
 $7 \times 6 = 42$   
What property is this?  
**Commutative Property**

2. Solve:  
 $(3 \times 4) \times 5 = 60$   
 $3 \times (4 \times 5) = 60$   
What property is this?  
**Associative Property**

3. Solve:  
 $18 \times 1 = 18$   
 $18 \times 0 = 0$   
What property is this?  
**Identity Property**

4. Solve:  
 $24 \times 3 = 72$   
 $(20 + 4) \times 3 = 72$   
 $(20 \times 3) + (4 \times 3) = 72$   
What property is this?  
**Distributive Property**

5. Solve:  
 $(6 \times 7) \times 2 = 84$   
 $6 \times (7 \times 2) = 84$   
What property is this?  
**Associative Property**

6. Solve:  
 $18 \times 4 = 72$   
 $(10 + 8) \times 4 = 72$   
 $(10 \times 4) + (8 \times 4) = 72$   
What property is this?  
**Distributive Property**

Properties of Multiplication – Quick Check Answer Key

**Properties of Multiplication**

There are four properties of multiplication. Understanding these properties are rules that will make solving multiplication problems easier.

<p><b>Commutative Property</b></p> <p>You can switch the order of the factors, and it won't change the answer.</p> <p><math>3 \times 6 = 18</math> <math>6 \times 3 = 18</math></p>	<p><b>Associative Property</b></p> <p>You can change the placement of the parenthesis but it won't change the answer.</p> <p><math>(3 \times 2) \times 4 = 24</math> <math>6 \times 4 = 24</math> <math>3 \times (2 \times 4) = 24</math> <math>3 \times 8 = 24</math></p>
<p><b>Distributive Property</b></p> <p>A multiplication fact can be broken into (distributed) a sum of two other multiplication facts.</p> <p><math>24 \times 3 = ?</math> <math>(20 + 4) \times 3 = ?</math> <math>(20 \times 3) + (4 \times 3) = ?</math> <math>(80) + (12) = 92</math></p>	<p><b>Identity Property</b></p> <p>The product of any number and 1 is always that number.</p> <p><math>4 \times 1 = 4</math> <math>32 \times 1 = 32</math></p> <p>The product of any number and 0 is 0.</p> <p><math>4 \times 0 = 0</math> <math>32 \times 0 = 0</math></p>

Properties of Multiplication – Color Anchor Chart

**Properties of Multiplication**

There are four properties of multiplication. Understanding these properties are rules that will make solving multiplication problems easier.

<p><b>Commutative Property</b></p> <p>You can switch the order of the factors, and it won't change the answer.</p> <p><math>3 \times 6 = 18</math> <math>6 \times 3 = 18</math></p>	<p><b>Associative Property</b></p> <p>You can change the placement of the parenthesis but it won't change the answer.</p> <p><math>(3 \times 2) \times 4 = 24</math> <math>6 \times 4 = 24</math> <math>3 \times (2 \times 4) = 24</math> <math>3 \times 8 = 24</math></p>
<p><b>Distributive Property</b></p> <p>A multiplication fact can be broken into (distributed) a sum of two other multiplication facts.</p> <p><math>24 \times 3 = ?</math> <math>(20 + 4) \times 3 = ?</math> <math>(20 \times 3) + (4 \times 3) = ?</math> <math>(80) + (12) = 92</math></p>	<p><b>Identity Property</b></p> <p>The product of any number and 1 is always that number.</p> <p><math>4 \times 1 = 4</math> <math>32 \times 1 = 32</math></p> <p>The product of any number and 0 is 0.</p> <p><math>4 \times 0 = 0</math> <math>32 \times 0 = 0</math></p>

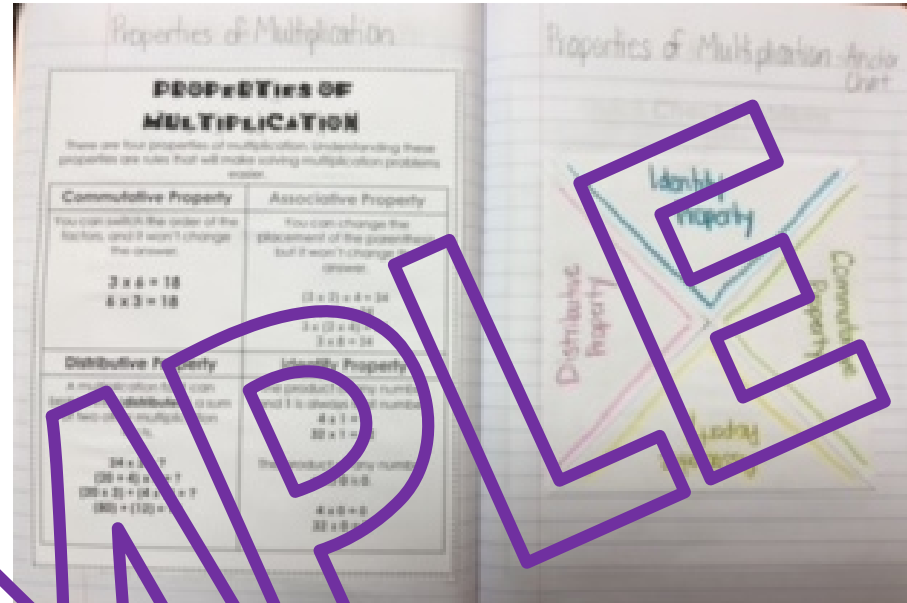
Properties of Multiplication – Black and White Anchor Chart



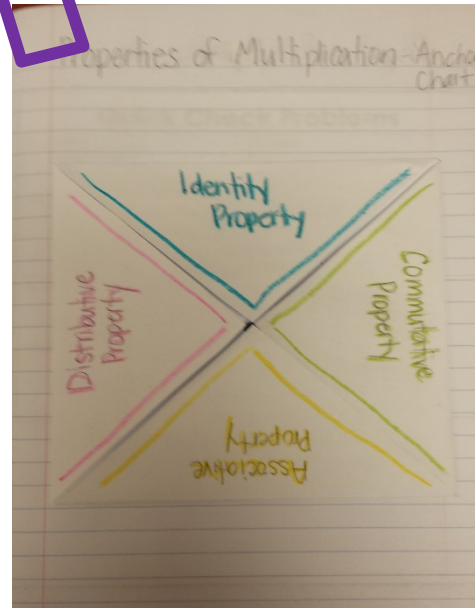
# Properties of Multiplication – Assembly Notes & Directions

## Anchor Chart

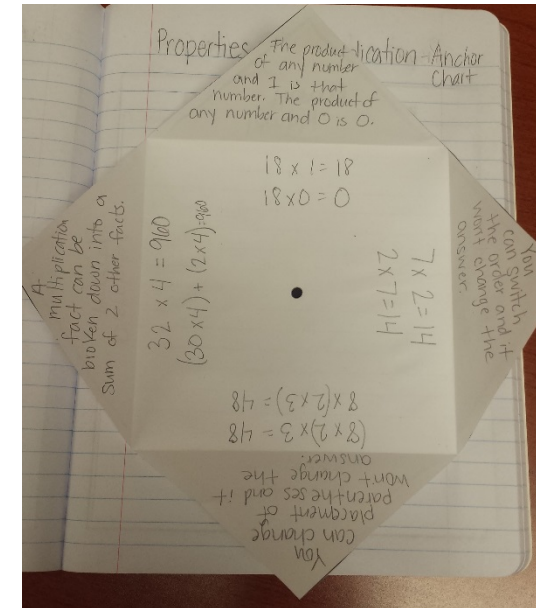
Make enough copies for students. Have students cut and paste in their math journal. Review anchor chart with students as you would a full size anchor chart. Students will be able to reference back to this page if they have questions about place value.



Foldable - Outside



Foldable - Inside



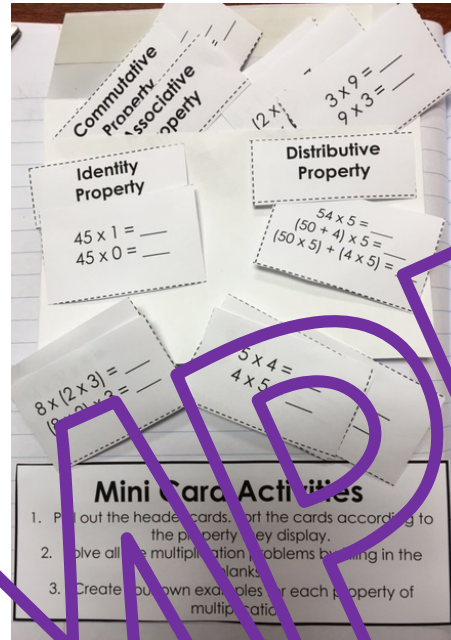
## Foldable

See the example provided in the pictures to the right. Create foldable with students. You can modify the examples to meet your students specific learning needs.

# Properties of Multiplication – Assembly Notes & Directions

## Extension Activities

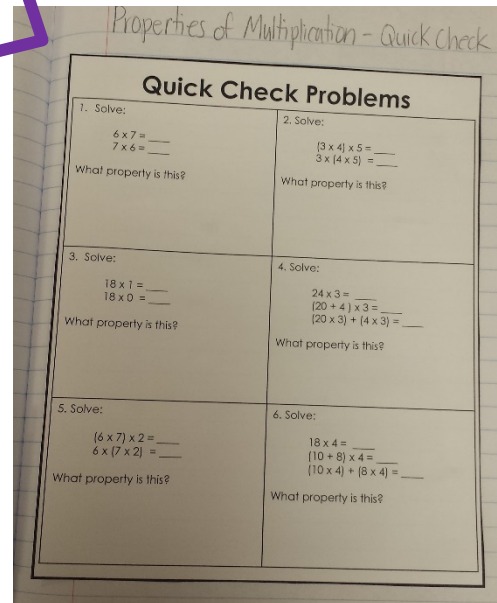
Give each student a copy of the Extension Activities list to place in their journal as well as a copy of the mini cards. Have students glue a small envelope into their math journal to store their mini cards. You can use the mini card activities as an extension or early finisher activity.



SAMPLE

## Quick Check

Give each student a copy of the Quick Check sheet. Students can glue them in their math journal as a reference page, or you can collect them. The quick check can be used as a formative assessment to see where your students level of mastery is after you have spent a few days practicing the skill.



## Quick Check

## Quick Check - Key

Quick Check Problems - Key	
1. Solve: $6 \times 7 = 42$ $7 \times 6 = 42$ What property is this? <b>Commutative Property</b>	2. Solve: $(3 \times 4) \times 5 = 60$ $3 \times (4 \times 5) = 60$ What property is this? <b>Associative Property</b>
3. Solve: $18 \times 1 = 18$ $18 \times 0 = 0$ What property is this? <b>Identity Property</b>	4. Solve: $24 \times 3 = 72$ $(20 + 4) \times 3 = 72$ $(20 \times 3) + (4 \times 3) = 72$ What property is this? <b>Distributive Property</b>
5. Solve: $(6 \times 7) \times 2 = 84$ $6 \times (7 \times 2) = 84$ What property is this? <b>Associative Property</b>	6. Solve: $18 \times 4 = 72$ $(10 + 8) \times 4 = 72$ $(10 \times 4) + (8 \times 4) = 72$ What property is this? <b>Distributive Property</b>

# Properties of Multiplication

There are four properties of multiplication. Understanding these properties are rules that will make solving multiplication problems easier.

<p><b>Commutative Property</b></p>	<p><b>Associative Property</b></p>
<p>You can switch the order of the factors, and it won't change the answer.</p> <p><math>3 \times 6 = 18</math>  <math>6 \times 3 = 18</math></p>	<p>You can change the placement of the parenthesis, but it won't change the answer.</p> <p><math>(3 \times 2) \times 4 = 24</math>  <math>6 \times 4 = 24</math>  <math>3 \times (2 \times 4) = 24</math>  <math>3 \times 8 = 24</math></p>
<p><b>Distributive Property</b></p>	<p><b>Identity Property</b></p>
<p>A multiplication fact can be broken into (<b>distributed</b>) a sum of two other multiplication facts.</p> <p><math>24 \times 3 = ?</math>  <math>(20 + 4) \times 3 = ?</math>  <math>(20 \times 3) + (4 \times 3) = ?</math>  <math>(80) + (12) = 92</math></p>	<p>The product of any number and <b>1</b> is always that number.</p> <p><math>4 \times 1 = 4</math>  <math>32 \times 1 = 32</math></p> <p>The product of any number and <b>0</b> is <b>0</b>.</p> <p><math>4 \times 0 = 0</math>  <math>32 \times 0 = 0</math></p>

SAMPLE



# Properties of Multiplication

There are four properties of multiplication. Understanding these properties are rules that will make solving multiplication problems easier.

Commutative Property	Associative Property
<p>You can switch the order of the factors, and it won't change the answer.</p> $3 \times 6 = 18$ $6 \times 3 = 18$	<p>You can change the placement of the parenthesis, but it won't change the answer.</p> $(3 \times 2) \times 4 = 24$ $6 \times 4 = 24$ $3 \times (2 \times 4) = 24$ $3 \times 8 = 24$
Distributive Property	Identity Property
<p>A multiplication fact can be broken into (<b>distributed</b>) a sum of two other multiplication facts.</p> $24 \times 3 = ?$ $(20 + 4) \times 3 = ?$ $(20 \times 3) + (4 \times 3) = ?$ $(80) + (12) = 92$	<p>The product of any number and <b>1</b> is always that number.</p> $4 \times 1 = 4$ $32 \times 1 = 32$ <p>The product of any number and <b>0</b> is 0.</p> $4 \times 0 = 0$ $32 \times 0 = 0$

SAMPLE

SAMPLE

## Extension Activities

1. Pull out the header cards. Sort the cards according to the property they display.
2. Solve all the multiplication problems by filling in the blanks.
3. Create your own examples for each property of multiplication.

## Extension Activities

1. Pull out the header cards. Sort the cards according to the property they display.
2. Solve all the multiplication problems by filling in the blanks.
3. Create your own examples for each property of multiplication.

SAMPLE

### Commutative Property

$$5 \times 4 = \underline{\quad}$$
$$4 \times 5 = \underline{\quad}$$

### Associative Property

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

### Distributive Property

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

### Identity Property

$$4 \times 8 = \underline{\quad}$$
$$8 \times 4 = \underline{\quad}$$

$$(2 \times 3) \times 7 = \underline{\quad}$$
$$2 \times (3 \times 7) = \underline{\quad}$$

$$(4 \times 3) \times 5 = \underline{\quad}$$
$$4 \times (3 \times 5) = \underline{\quad}$$

$$8 \times (2 \times 3) = \underline{\quad}$$
$$(8 \times 2) \times 3 = \underline{\quad}$$

$$9 \times (1 \times 5) = \underline{\quad}$$
$$(9 \times 1) \times 5 = \underline{\quad}$$

$$24 \times 1 = \underline{\quad}$$
$$24 \times 0 = \underline{\quad}$$

$$19 \times 1 = \underline{\quad}$$
$$19 \times 0 = \underline{\quad}$$

$$8 \times 1 = \underline{\quad}$$
$$8 \times 0 = \underline{\quad}$$

$$45 \times 1 = \underline{\quad}$$
$$45 \times 0 = \underline{\quad}$$

$$18 \times 3 = \underline{\quad}$$
$$(10 + 8) \times 3 = \underline{\quad}$$
$$(10 \times 3) + (8 \times 3) = \underline{\quad}$$

$$54 \times 5 = \underline{\quad}$$
$$(50 + 4) \times 5 = \underline{\quad}$$
$$(50 \times 5) + (4 \times 5) = \underline{\quad}$$

$$62 \times 4 = \underline{\quad}$$
$$(60 + 2) \times 4 = \underline{\quad}$$
$$(60 \times 4) + (2 \times 4) = \underline{\quad}$$

$$26 \times 6 = \underline{\quad}$$
$$(20 + 6) \times 6 = \underline{\quad}$$
$$(20 \times 6) + (6 \times 6) = \underline{\quad}$$

SAMPLE

SAMPLE

# Quick Check Problems

1. Solve:

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

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

What property is this?

2. Solve:

$$(3 \times 4) \times 5 = \underline{\quad}$$

$$3 \times (4 \times 5) = \underline{\quad}$$

What property is this?

3. Solve:

$$18 \times 1 = \underline{\quad}$$

$$18 \times 0 = \underline{\quad}$$

What property is this?

4. Solve:

$$24 \times 3 = \underline{\quad}$$

$$(20 + 4) \times 3 = \underline{\quad}$$

$$(20 \times 3) + (4 \times 3) = \underline{\quad}$$

What property is this?

5. Solve:

$$(6 \times 7) \times 2 = \underline{\quad}$$

$$6 \times (7 \times 2) = \underline{\quad}$$

What property is this?

6. Solve:

$$18 \times 4 = \underline{\quad}$$

$$(10 + 8) \times 4 = \underline{\quad}$$

$$(10 \times 4) + (8 \times 4) = \underline{\quad}$$

What property is this?

SAMPLE

# Quick Check Problems - Key

1. Solve:

$$6 \times 7 = 42$$

$$7 \times 6 = 42$$

What property is this?

**Commutative Property**

2. Solve:

$$(3 \times 4) \times 5 = 60$$

$$3 \times (4 \times 5) = 60$$

What property is this?

**Associative Property**

3. Solve:

$$18 \times 1 = 18$$

$$18 \times 0 = 0$$

What property is this?

**Identity Property**

4. Solve:

$$24 \times 3 = 72$$

$$(20 + 4) \times 3 = 72$$

$$(20 \times 3) + (4 \times 3) = 72$$

What property is this?

**Distributive Property**

5. Solve:

$$(6 \times 7) \times 2 = 84$$

$$6 \times (7 \times 2) = 84$$

What property is this?

**Associative Property**

6. Solve:

$$18 \times 4 = 72$$

$$(10 + 8) \times 4 = 72$$

$$(10 \times 4) + (8 \times 4) = 72$$

What property is this?

**Distributive Property**

SAMPLE