Expressions Unit Plan

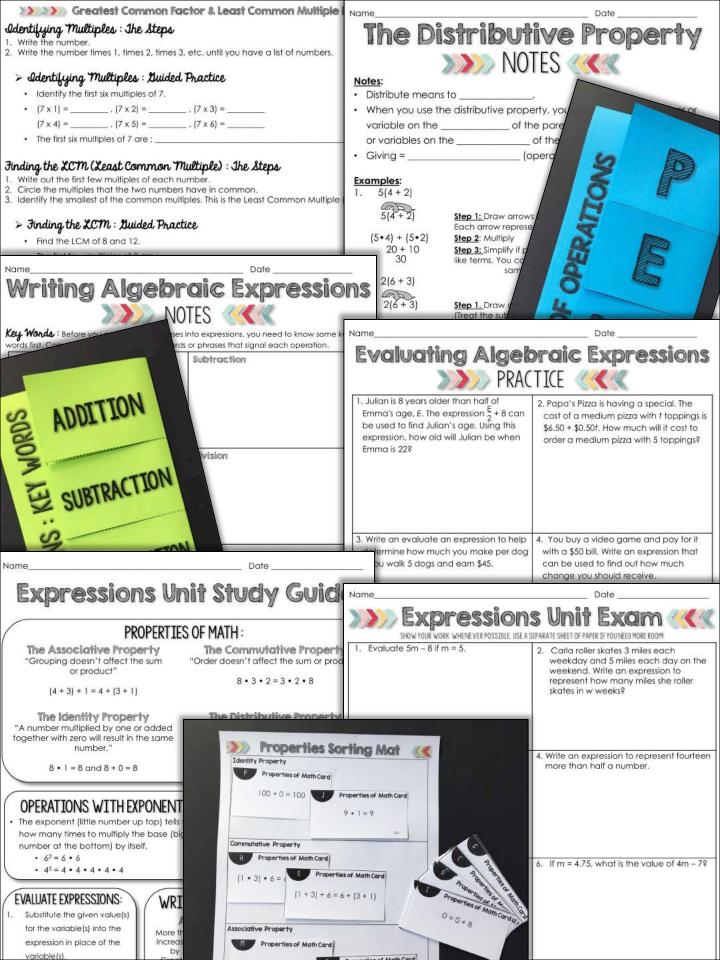| LESSON	RESOURCES	
Unit Prep (pgs. 7 - 14)	• Weekly Warm Up Sheet • Exit Tickets • Lesson Plan Template	• Vocabulary Pages • Unit Pre-Assessment
(1) Exponents and Order of Operations (pgs. 15 - 38)	• Three Warm Ups • Exponents Notes • Exponents Practice • Exponents Matching Activity • Order of Operations Notes • Order of Operations Fold and Flip Notes • Order of Operations Practice (2 pages)	
(2) Properties of Math (pgs. 39 - 53)	• Three Warm Ups • Properties of Math Notes • Properties of Math Fold and Flip Notes • Properties of Math Sorting Activity • Properties of Math Practice	
(3) The Distributive Property (pgs. 54 - 64)	• Three Warm Ups • GCF and LCM Notes • GCF and LCM Practice • Distributive Property Notes • Distributive Property Guided Practice • Distributive Property Practice (2 pages)	
(4) Writing Algebraic Expressions (pgs. 65 - 81)	• Three Warm Ups • Writing Algebraic Expressions Notes • Writing Algebraic Expressions Fold and Flip Notes • Writing Algebraic Expressions Practice (2 pages) • Writing Algebraic Expressions Matching Activity	
(5) Evaluating Algebraic Expressions (pgs. 82 - 88)	• Three Warm Ups • Evaluating Expressions Notes • Evaluating Expression Practice (2 pages)	
End of Unit (pgs. 89 - 93)	• Study Guide • Unit Exam	

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Expressions Unit Pre-Assessment

{Show all work on a separate sheet of paper.}

1) What is the value of 2^4?	5) Give an example of the associative property of multiplication.
2) Write an expression to represent "four more than twice a number."	7) Simplify the expression $8x - 2$ if $x = 4$.
3) Simplify using the distributive property : $8(3x - 2)$	8) Give an example of the commut___ property of addition

Exponents Practice

Write each expression in exponential form.

1) $8 \times 8 \times 8 \times 8$ = _____

2) $5 \times 5 \times 5$ = _____

3) ___ = _____

4) 20 = _____

6) $3 \times 3 \times 3 \times 3 \times 3$ = _____

PROPERTIES OF MATH

ASSOCIATIVE PROPERTY   COMMUTATIVE PROPERTY   IDENTITY

Order of Operations NOTES

What's the Order?

THE ORDER	THE MATH	THE EXPLANATION
P	Parenthesis	Simplify any expressions within grouping symbols first.
E	Exponents	Once grouping symbols are eliminated, simplify any terms with an exponent.
MD	Multiplication OR Division	Multiply or divide from left to right. Whichever comes first between these two, is simplified first.

Properties of Math WARM UP

Skill : Evaluating expressions by using the order of operations

1. Simplify :	2. Simplify :
$2^2 + 4 - 3 \cdot 2$	$5^2 - 4 \cdot 2$
3. Simplify :	4. Simplify :

Properties of Math NOTES

Think About It :

What does the word "property" mean to you?

_____

_____

Define :

- Associative Property - _____

- Commutative Property - _____

- Identity Property of Addition - _____

- Identity Property of Multipli___

Label : Identify each property

$8 + 4 + 3 = 4 + 8 + 3$

PROPERTIES OF MATHEMATICS SORTING ACTIVITY

About this activity :

- Students will sort equations into categories based on the type of property the equation displays.

Materials (per student or set of students) :

gle page or two pages)

ards)

not need to be pre-cut since s to the students and have

ociative Property, category on their sorting mat.

r sheet. Each card is labeled record the letter that

Card 5 Card 6 Card 9   Card C   Card 13

46 Two cubed $3 \times 3 \times 3 \times 3$

Card 3   Card B

52 Five $5 \times$

Identifying Multiples : The Steps
1. Write the number.
2. Write the number times 1, times 2, times 3, etc. until you have a list of numbers.

➢ Identifying Multiples : Guided Practice
- Identify the first six multiples of 7.
- $(7 \times 1) =$ _____ , $(7 \times 2) =$ _____ , $(7 \times 3) =$ _____
  $(7 \times 4) =$ _____ , $(7 \times 5) =$ _____ , $(7 \times 6) =$ _____
- The first six multiples of 7 are : _____

Finding the LCM (Least Common Multiple) : The Steps
1. Write out the first few multiples of each number.
2. Circle the multiples that the two numbers have in common.
3. Identify the smallest of the common multiples. This is the Least Common Multiple

➢ Finding the LCM : Guided Practice
- Find the LCM of 8 and 12.

Name_____ Date _____

The Distributive Property
›››› NOTES ‹‹‹‹

Notes:
- Distribute means to _____.
- When you use the distributive property, you _____ or variable on the _____ of the pare_____ or variables on the _____ of the_____
- Giving = _____ (opera_____

Examples:
1. $5(4 + 2)$

   $5(4 + 2)$

   $(5 \cdot 4) + (5 \cdot 2)$
   $20 + 10$
   30

   Step 1: Draw arrows
   Each arrow represe_____
   Step 2: Multiply
   Step 3: Simplify if p_____
   like terms. You c_____
   sam_____

   $2(6 + 3)$

   $2(6 + 3)$

   Step 1. Draw _____
   (Treat the sub_____

Name_____ Date _____

Writing Algebraic Expressions
›››› NOTES ‹‹‹‹

Key Words : Before you_____ ses into expressions, you need to know some k_____
words first. C_____ rds or phrases that signal each operation.

	Subtraction
	vision

Name_____ Date _____

Evaluating Algebraic Expressions
›››› PRACTICE ‹‹‹‹

1. Julian is 8 years older than half of Emma's age, E. The expression $\frac{E}{2} + 8$ can be used to find Julian's age. Using this expression, how old will Julian be when Emma is 22?	2. Papa's Pizza is having a special. The cost of a medium pizza with t toppings is $6.50 + 0.50t$. How much will it cost to order a medium pizza with 5 toppings?
3. Write an evaluate an expression to help determine how much you make per dog _____ walk 5 dogs and earn $45.	4. You buy a video game and pay for it with a $50 bill. Write an expression that can be used to find out how much change you should receive.

Name_____ Date _____

Expressions Unit Study Guide

PROPERTIES OF MATH :

The Associative Property
"Grouping doesn't affect the sum or product"

$(4 + 3) + 1 = 4 + (3 + 1)$

The Commutative Property
"Order doesn't affect the sum or prod_____

$8 \cdot 3 \cdot 2 = 3 \cdot 2 \cdot 8$

The Identity Property
"A number multiplied by one or added together with zero will result in the same number."

$8 \cdot 1 = 8$ and $8 + 0 = 8$

The Distributive Property

OPERATIONS WITH EXPONENT_____
- The exponent (little number up top) tells _____
  how many times to multiply the base (bi_____
  number at the bottom) by itself.
  - $6^2 = 6 \cdot 6$
  - $4^5 = 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$

EVALUATE EXPRESSIONS:
1. Substitute the given value(s) for the variable(s) into the expression in place of the variable(s).

WRI_____
More th_____
Increas_____
by_____

›››› Properties Sorting Mat ‹‹‹‹

Identity Property
P — Properties of Math Card
$100 + 0 = 100$
J — Properties of Math Card
$9 \cdot 1 = 9$

Commutative Property
H — Properties of Math Card
R — Properties of Math Card
$(1 \cdot 3) \cdot 6 =$_____
$(1 \cdot 3) + 6 = 6 + (3 + 1)$

Associative Property
H — Properties of Math Card

Properties of Math Card
$0 = 0 + 8$

Name_____ Date _____

›››› Expressions Unit Exam ‹‹‹‹
SHOW YOUR WORK WHENEVER POSSIBLE. USE A SEPARATE SHEET OF PAPER IF YOU NEED MORE ROOM!

1. Evaluate $5m - 8$ if $m = 5$.	2. Carla roller skates 3 miles each weekday and 5 miles each day on the weekend. Write an expression to represent how many miles she roller skates in w weeks?
	4. Write an expression to represent fourteen more than half a number.
	6. If $m = 4.75$, what is the value of $4m - 7$?

Expressions

UNIT PREP

SUGGESTED TIME FRAME : ONE DAY

Resources Included:

- Weekly Warm Up Sheet
    - Copy weekly for each student. This provides them with an organized place to keep their warm ups each day and makes it simple for grading.
- Exit Tickets
    - This sheet includes 5 exit tickets that can easily be cut or torn by students and turned in each day. Provide students with a single problem to solve or question to respond to at the end of each class.
    - Exit ticket problems are not included since classes work at different paces.
- Lesson Plan
    - A blank lesson plan template is included for you to print and record your daily lesson(s).
- Vocabulary
    - Two versions of the vocabulary sheet are included. One pre-filled with words from the unit and one blank.
- Pre-Assessment
    - A short one page assessment

LESSON ONE
Exponents and Order of Operations

SUGGESTED TIME FRAME : THREE TO FOUR DAYS

Resources Included:

- Three Warm Ups
- Exponents Notes
- Exponents Practice – Can be used for homework or classwork
- Exponents Matching Activity
- Order of Operations Notes
- Order of Operations Fold and Flip Notes
- Order of Operations Practice (2 pages) – Can be used for homework or classwork

Essential Skills :

- Write and evaluate expressions involving whole number exponents.

LESSON TWO
Properties of Math

SUGGESTED TIME FRAME : TWO DAYS

Resources Included:

- Three Warm Ups
- Properties of Math Notes
- Properties of Math Fold and Flip Notes
- Properties of Math Sorting Activity
- Properties of Math Practice – Can be used for homework or classwork

Essential Skills :

- Use the properties of operations to generate equivalent expressions.
- Identify equivalent expressions.

Writing Algebraic Expressions

SUGGESTED TIME FRAME : TWO TO THREE DAYS

Resources Included:

- Three Warm Ups
- Writing Algebraic Expressions Notes
- Writing Algebraic Expressions Fold and Flip Notes
- Writing Algebraic Expressions Practice (2 pages) – Can be used for homework or classwork
- Writing Algebraic Expressions Matching Activity

Essential Skills :

- Read and write evaluate expressions with variables.
- Identify parts of expressions using mathematical terms.
- Use variables to represent unknowns when writing expressions to solve real world and mathematical problems.

Evaluating Algebraic Expressions

SUGGESTED TIME FRAME : THREE TO FOUR DAYS

Resources Included:

- Three Warm Ups
- Evaluating Expressions Notes
- Evaluating Expression Practice (2 pages) - Can be used for Homework or Classwork

Essential Skills :

- Write, read and evaluate expressions with variables.
- Evaluate expressions at specific values of their variables – use formulas.
- Use variables to represent unknowns when writing expressions to solve real world and mathematical problems.

Expressions

END OF UNIT

SUGGESTED TIME FRAME : TWO DAYS (ONE FOR REVIEW)

Resources Included:

- Study Guide
- Final Unit Exam