**TEACHER RESOURCE LIBRARY**

Grade 6 ~ ***Expressions and Equations: Algebraic Expressions (6.EE.1-4)***

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| **Apply and extend previous understandings of arithmetic to algebraic expressions.** | | | | | |
| **Resources** | **1. Write and evaluate numerical expressions involving whole-number exponents.** | **2. Write, read, and evaluate expressions in which letters stand for numbers.**  **a.** Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation* *“Subtract y from 5” as 5 – y.*  **b.** Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the* *expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both* *a single entity and a sum of two terms.*  **c.** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).  *For example, use the formulas V = s3 and A = 6 s2 to find the volume and surface area of a cube with sides of length s = 1/2.* | | **3. Apply the properties of operations to generate equivalent expressions.** *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property**to the expression*  *24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.* | **4. Identify when two expressions are equivalent** (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions*  *y + y + y and 3y* *are equivalent because they name the same number regardless of which* *number y stands for.* |
| **My Stuff** |  |  | |  |  |
| **Resource Books** | **Exponents**  **Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)**   * TEACHER CONTENT   + Exponents: p. 473-476   **Elementary & Middle School Mathematics (VanDeWalle, 6th Ed.)**   * TEACHER CONTENT   + Exponents: p. 493-495   **Elementary Mathematics for Teachers (Parker, Baldridge, 2004) ISBN 0-9748140-0-8**   * TEACHER CONTENT   + Exponents: p. 101-102   **Variables**  **Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)**   * TEACHER CONTENT   + The Meaning of Variables: p. 262-264   **Elementary & Middle School Mathematics (VanDeWalle, 6th Ed.)**   * TEACHER CONTENT   + Variables in Equation: p. 262-263   **Elementary Mathematics for Teachers (Parker, Baldridge, 2004) ISBN 0-9748140-0-8**   * TEACHER CONTENT   + Letters and Expressions: p. 87-95   **Order of Operations**  **Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)**   * TEACHER CONTENT   + Order of Operations: p. 474-475   **Properties of Operations**  **Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)**   * TEACHER CONTENT   + Properties of Multiplication and Division: p. 160-161 * STUDENT ACTIVITIES   + Slice it Up (Activity 9.8): p. 158   **Elementary & Middle School Mathematics (VanDeWalle, 6th Ed.)**   * TEACHER CONTENT   + Useful Multiplication and Division Properties: p. 157-158 * STUDENT ACTIVITIES   + Slice it Up (Activity 10.8): p. 158   **Elementary Mathematics for Teachers (Parker, Baldridge, 2004) ISBN 0-9748140-0-8**   * TEACHER CONTENT   + Properties of Multiplication: p. 26-27   + Identities, Properties, and Rules: p. 96-100 | | | | |
| **Web** | **Exponents**  TEACHER CONTENT   * **Math Goodies - Exponents - Tutorial and Practice Exercises** - <http://www.mathgoodies.com/lessons/vol3/exponents.html> * **Math Goodies - Patterns and Exponents - Tutorial and Practice Exercises** –   <http://www.mathgoodies.com/lessons/vol3/patterns_and_exponents.html>  STUDENT ACTIVITIES/LESSONS   * **EZSchool - Alien Exponents - Game** - <http://www.ezschool.com/Games/Exponents.html>   **Parts of an Expression and Definitions**  TEACHER CONTENT   * **Math.com - Teacher Tutorial** - <http://www.math.com/school/subject2/lessons/S2U1L1GL.html> * **Math Is Fun - Teacher Tutorial** - <http://www.mathsisfun.com/algebra/definitions.html>   **Variables**  STUDENT ACTIVITIES/LESSONS   * **MathStar - Interactive Lesson** - <http://mathstar.lacoe.edu/lessonlinks/menu_math/var_food.html>   **Write, Read and Evaluate Expressions**  TEACHER CONTENT   * **Study Guides and Tutorials - Teacher Tutorial** - <http://www.studygs.net/mathproblems.htm>   STUDENT ACTIVITIES/LESSONS   * **Math Goodies - Writing Algebraic Expressions - Tutorial and Practice Exercises** -   <http://www.mathgoodies.com/lessons/vol7/expressions.html>   * **Mathwire - I Have, Who Has - Game** - <http://mathwire.com/whohas/whalgA.pdf> * **Math Play - Who Wants to Be a Millionaire - Game** –   <http://www.math-play.com/Algebraic-Expressions-Millionaire/algebraic-expressions-millionaire.html>   * **UEN - Algebra Applies to the Real World! No Way! - Lesson** - <http://www.uen.org/Lessonplan/preview.cgi?LPid=18876>   **Order of Operations**  STUDENT ACTIVITIES/LESSONS   * **LearnAlberta - Exploring Order of Operations - Student Interactive**   <http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.NUMB&ID2=AB.MATH.JR.NUMB.INTE&lesson=html/object_interactives/order_of_operations/use_it.html>   * **Illuminations- Order of Operations Bingo - Lesson** -<http://illuminations.nctm.org/LessonDetail.aspx?id=L730> * **Math Goodies - Order of Operations - Tutorial and Practice Exercises** -   <http://www.mathgoodies.com/lessons/vol7/order_operations.html>   * **Math Goodies - Order of Operations with Exponents - Tutorial and Practice Exercises** -   <http://www.mathgoodies.com/lessons/vol7/operations_exponents.html>   * **Illuminations - Everything Balances Out in the End - Lesson** - <http://illuminations.nctm.org/LessonDetail.aspx?ID=L643>   **Properties of Operations**  TEACHER CONTENT   * **Math League - Teacher Tutorial** - <http://www.mathleague.com/help/wholenumbers/wholenumbers.htm> * **Purplemath - Teacher Tutorial** - <http://www.purplemath.com/modules/numbprop.htm> | | | | |
| **Literature Connections** | Dinosaur Deals by Stuart Murphy  The King’s Chessboard by David Birch  Minnie’s Diner by Dayle Ann Dodds  One Grain of Rice by Demi | | Ordinary Mary’s Extraordinary Deed by Emily Pearson  Pay It Forward - Student Book Excerpt - [www.payitforwardfoundation.org](http://www.payitforwardfoundation.org)  Powers of Ten by Charles and Ray Eames  Safari Park by Stuart Murphy | | |