**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
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| **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>
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| **Literature Connections** | Dinosaur Deals by Stuart MurphyThe King’s Chessboard by David BirchMinnie’s Diner by Dayle Ann DoddsOne Grain of Rice by Demi | Ordinary Mary’s Extraordinary Deed by Emily PearsonPay It Forward - Student Book Excerpt - [www.payitforwardfoundation.org](http://www.payitforwardfoundation.org)Powers of Ten by Charles and Ray EamesSafari Park by Stuart Murphy |