



# TABLE OF CONTENTS

Start Quick and Ramp It Up! 5<sup>th</sup> Grade Order of Operations and Equations

ACTIVITY	TOPICS	PAGE
	<a href="#">Table of Standards</a>	5
<a href="#">Anchor It</a>	Introduction to Order of Operations	7
<a href="#">Sort &amp; Match</a>	Order of Operations Card Sort	12
<a href="#">Domino Connections</a>	Order of Operations Card Sort	16
<a href="#">What's Missing?</a>	Fill-in-the-Blanks Order of Operations	23
<a href="#">Make it Correct</a>	Find the Mistake	29
<a href="#">Follow the Rules</a>	Find the Mistake	36
<a href="#">Classroom Challenges</a>	Order of Operations Classroom Challenge	46
<a href="#">Haroo's Zoo</a>	Word Problems & Equations Fill in the Blank	53
<a href="#">Guadalca</a>	Word Problems & Equations	62
<a href="#">Best Wrong Answer</a>	Word Problems & Equations	72
<a href="#">Andromeda's Choice</a>	Equations & Word Problems	79
<a href="#">School Supplies</a>	Word Problems & Equations	85



# TABLE OF CONTENTS

Start Quick and Ramp It Up! 5<sup>th</sup> Grade Order of Operations and Equations

## Content and Instruction Extras

### MEANING BEHIND THE MATH

<a href="#">Why Do Students Need to Follow the Form When They Simplify Numerical Expressions? (5.IC)</a>	13
<a href="#">HEY!!! Where's Aunt Sally? (5.IB)</a>	17
<a href="#">Common Mistakes When Using Order of Operations to Simplify Expressions (5.IB)</a>	24
<a href="#">Best Wrong Answer</a>	73
<a href="#">Different Equations—Same Meaning (5.IF)</a>	79
<a href="#">Connecting Order of Operations to Other Topics</a>	85

### READING, WRITING, AND SPEAKING TO IMPROVE CRITICAL THINKING

<a href="#">The Vocabulary of Order of Operations Problems (5.ID)</a>	12
<a href="#">Writing Equations in Words (5.ID)</a>	53

### WORKING THE CLASSROOM

<a href="#">Why Doesn't Solving a Bunch of Order of Operations Problems Help Students Solve Order of Operations</a>	7
<a href="#">Debriefing the Activity and Making the Personal Anchor Chart</a>	8
<a href="#">Underlining and Color in Order of Operations Solutions (5.IC)</a>	29
<a href="#">Using Online Video to Teach Order of Operations (5.IC)</a>	36
<a href="#">Guidelines for Adapting Activities for Center Work</a>	48
<a href="#">What Makes a Team Response So Powerful?</a>	63
<a href="#">How Can a Problem Have Two Right Answers? (5.IB)</a>	63



# TABLE OF STANDARDS (PG. 1 OF 2)

The activities in this 5th grade Order of Operations and Equations book address the following standards.

Where are we going? Focus Standards		Activity
(5.4)	<b>Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:</b>	
5.4B	represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity; <b>Readiness Standard</b>	<a href="#">8</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>
5.4E	describe the meaning of parentheses and brackets in a numeric expression; <b>Supporting Standard</b>	<a href="#">1</a> , <a href="#">2</a> , <a href="#">4</a>
5.4F	simplify numerical expressions that do not involve exponents, including up to two levels of grouping. <b>Readiness Standard</b>	<a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> , <a href="#">5</a> , <a href="#">6</a> , <a href="#">7</a>

How will we get there? Operations Standards		Activity
(5.3)	<b>Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:</b>	
5.3E	solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers; <b>Readiness Standard</b>	<a href="#">3</a> , <a href="#">12</a>

What kind of mathematical thinking will we use? Process Standards		Activity
(5.1)	<b>(5.1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:</b>	
5.1A	apply mathematics to problems arising in everyday life, society, and the workplace;	<a href="#">1</a> , <a href="#">6</a> , <a href="#">8</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>
5.1B	use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;	<a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> , <a href="#">5</a> , <a href="#">6</a> , <a href="#">7</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>
5.1C	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;	<a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> , <a href="#">5</a> , <a href="#">6</a> , <a href="#">7</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>
5.1D	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;	<a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> , <a href="#">5</a> , <a href="#">6</a> , <a href="#">7</a> , <a href="#">8</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>
5.1E	create and use representations to organize, record, and communicate mathematical ideas;	<a href="#">9</a> , <a href="#">10</a> , <a href="#">12</a>
5.1F	analyze mathematical relationships to connect and communicate mathematical ideas.	<a href="#">1</a> , <a href="#">2</a> , <a href="#">4</a> , <a href="#">5</a> , <a href="#">6</a> , <a href="#">7</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>
5.1G	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	<a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> , <a href="#">5</a> , <a href="#">6</a> , <a href="#">7</a> , <a href="#">8</a> , <a href="#">9</a> , <a href="#">10</a> , <a href="#">11</a> , <a href="#">12</a>