5th Grade Order of Operations Unit Planner

Planning Focus: Order of Operations Unit 5 iReady Math Grade 5

Domain:
Operations and Algebraic Thinking

Cluster:

A. Write and interpret numerical expressions

Standards:

5.OA.A.1- Use parentheses, brackets, or braces in numerical expressions with these symbols.

5.OA.A.2- Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.

Mathematical Practices being Emphasized:

1. Make sense of problems and persevere in solving them
5. Use appropriate tools strategically
6. Attend to Precision
7. Look for and make use of structure

Essential Questions

What does it mean to evaluate an expression?
Why do we need a specific order when solving problems with multiple operations?
How does the order of operations affect the answer?

Pre-Requisite Skill

-Write an expression to represent a given situation
-Use all 4 operations with whole and partial numbers

Key Concepts

-Understand that grouping symbols (braces, brackets, parentheses) show the order in which expressions should be evaluated
-Make sense of problems containing multiple operations and grouping symbols
- Write and solve numerical expressions using the order of operations

Pre and Post Assessments

Preassessment: Mixed problems of pre-requisite operations and understanding

See attached pre-assess

Post assessment: End of topic test

Visual Models/ Algorithms/ Diagrams for Compendium

See attached Compendium.

Connections (Real World Applications)

Shopping (amounts, discounts, coupons, etc)
Sports Scores
Money management
Baking/cooking
Computer programming
Event planning (birthday party, etc)

Language Functions/Structures

Functions: Explain. Describe. Compare

Structures: First, I _____ then, _____ and finally _____

_____is as many times as _____

_____ is _____ times what number?

To evaluate this expression, I would start with _____.

Vocabulary

Expression	Exponents	Equation
Parentheses	Brackets	Braces
Numerical	Operations	Sum
Difference	Product	Base

Focus and Motivation

Literature – *The Story of the Order of Operations: PEMDAS* by Kim Huffstetler
PEMDAS Gets Lost- by Rachel McNerney

Realia: Grocery store situations (juice boxes, cookies, etc)

Songs - Number Rock- PEMDAS Rock - https://www.youtube.com/watch?v=ZzeDWFhYv3E
Order of Operations- Instructabeats -https://www.youtube.com/watch?v=X8fpRCxfJV4
Please Excuse My Dear Aunt Sally- The Singing History Teachers-
https://www.youtube.com/watch?v=LwpUMJCSzec

Animations – Order of Operations– brainpop.com
Order of Operations– studyjams.scholastic.com

Game – Order Ops - https://mrnussbaum.com/order-ops-online-game
Order of Operations https://www.abcya.com/games/order_of_operations

Order of Operations PE MD AS

Parentheses

look like

( ) { } braces [ ] brackets

*always first!

Exponents

Look like

$2^3 = 2 \times 2 \times 2$ (2 ← base)

Sounds like

4^2 = 4 squared
= 4 to the 2nd power
= 4 to the power of 2

2^3 = 2 cubed

Multiply OR **D**ivide

LEFT to RIGHT →

4(3) 4•3 4x3

12 ÷ 4 12/4 $\frac{12}{4}$ 4)12

Add OR **S**ubtract

Left to RIGHT →

4 + 3 − 2
7 − 2
5

L→R
(12 − 2) + 5
10 + 5
15

A New Line Every Time!

(1+2) x (3+4)
3 x (3+4)
3 x (7) ← Can remove ( ) when no operation is left to do
21

3x7=21

Writing Numerical Expressions

15 minus the sum of 6 and 7

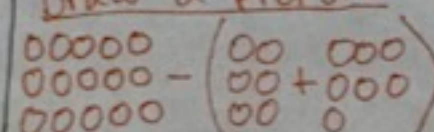
15 → number
minus → means subtract → −
the sum of 6 and 7 → A sum is the answer to addition. So add 6 and 7. 6 + 7

15 − (6+7) ← because we need the sum first!

Standards and math practices

*We will write and interpret numerical expressions with precision.

Draw a picture



Inquiry

Name: _____

Math Check

Directions: Solve the math problems below as best as you can. **<u>If you do not know the answer, put a question mark.</u> ?**

Solve:

4 x 5 = _____ 4^2 = _____

3(7) = _____ $30 \div 5 =$ _____

6•6 = _____ 24/6 = _____

20 is 5 times what number? Write an equation and solve it.

_____

Draw and label a bar model or diagram that shows a number that is 5 times as many as 8.

Complete the sentence to interpret 7 x 5= 35 as a comparison.

_____ times as many as _____ is _____

Write or draw anything you know about the terms in the boxes. If you don't know, just put a ?.

Exponents	Parentheses
Expression	Equation
Numerical	Order of Operations/PEMDAS