



Dear Parents,

Over the next few weeks, we will be learning about numerical expressions and patterns in math! The information below will help you to support your child as they learn these exciting, yet important fifth grade math skills.

The GOAL:

By the end of the unit, your child should be able to solve problems involving numerical expressions and analyze patterns in mathematical situations.

Numerical Expressions

Students must be able to solve numerical expressions based on the order of operations.

Parentheses (), brackets [], and braces { }, are different grouping symbols used in expressions. To evaluate an expression you must use the order of operations.

Evaluate the expression:

$$(10 + 6 \times 6) - 4 \times 10$$

Step 1: Start with the computations inside the parentheses. $\rightarrow 10 + 6 \times 6$

Step 2: Perform the order of operations inside the parentheses.

You must multiply and divide from left to right. $\rightarrow 10 + 6 \times 6 = 10 + 36$

You must add and subtract from left to right. $\rightarrow 10 + 36 = 46$

Step 3: Rewrite the expression with the parentheses evaluated. $\rightarrow 46 - 4 \times 10$

Step 4: Multiply and divide from left to right. $\rightarrow 46 - 4 \times 10 = 46 - 40$

Step 5: Add and subtract from left to right. $\rightarrow 46 - 40 = 6$

So, $(10 + 6 \times 6) - 4 \times 10 = 6$

Write Numerical Expressions

Students must be able to write a mathematical situation to match a given numerical expression AND write a numerical expression to match a given mathematical situation.

For example, Jillian buys 4 books. Each book costs \$10.00. If Jillian receives a \$2.00 discount on each book, what is the total amount Jillian spends?

The written expression for this example is: $4 \times (10 - 2)$



Numerical Patterns

Students must be able to identify relationships between corresponding terms of two patterns with the same starting number that have different rules.

	Number of Coins	0	1	2	3	4	...	9
Add 5 →	Nickels (¢)	0	5	10	15	20	...	?
Add 10 →	Dimes (¢)	0	10	20	30	40	...	?

Grade 5 Math: PA Core Math Standards in Unit 5

CC.2.2.5.A.1: Interpret and evaluate numerical expressions using order of operations.

CC.2.2.5.A.4: Analyze patterns and relationships using two rules.

-- KEY MATH VOCABULARY --

Numerical Expression: A mathematical phrase that uses only numbers and operations symbols.

Order of Operations: The rules that specify the order in which operations are performed.

Term: A number in a sequence.

Corresponding Terms: Matching terms from two patterns used to identify the relationship.

Number of Coins	0	1	2
Nickels (¢)	0	5	10
Dimes (¢)	0	10	20

Sequence: An ordered list of numbers that follow a particular pattern or rule.

Equation: A mathematical sentence that shows two quantities are equal (uses an equal sign).

-- HOW YOU CAN HELP AT HOME --

- Provide opportunities to write numerical expressions like the above examples.
- Give sample expressions using multiple operations for your child to solve using the order of operations.
- Provide your child with a pattern and ask them to identify or find the rule.