

Unit 14

Family Letter

Dear Family,

In this unit, Algebraic Thinking, your child will learn how to write, interpret, and evaluate numerical expressions and how to identify numerical patterns, and plot and interpret points plotted in the coordinate plane.

STEM Career Kid for this Unit

Hi, I'm Malik.

I want to be a photonics engineer. I will use math in my job when I study the paths of lasers. I will show students how I use the coordinate plane in my work.



What math terms will your child use?

Term	Student Understanding
order of operations	rules for evaluating numerical expressions; evaluate within grouping symbols, then multiply and/or divide in order from left to right, then add and/or subtract in order from left to right
numerical pattern	a sequence of numbers in which, given the first term, each term is found by applying the same rule to the preceding number
corresponding terms	given two numerical patterns, terms with the same position in each pattern; for example, the fifth term in one pattern corresponds to the fifth term in the second pattern



What can your child do at home?

Help your child develop fluency with the order of operations. With your child, create a poster that lists the order of operations. Create expressions for your child to evaluate. Ask them to explain each step throughout the evaluation process.

What Will Students Learn in This Unit?

Evaluating Numerical Expressions

Your child will learn how to write, interpret, and evaluate numerical expressions. The order of operations is a set of rules used so that everyone can get the same result.

The Order of Operations

1. Evaluate numerical expressions inside grouping symbols first.
2. Multiply and divide in order, from left to right.
3. Add and subtract in order, from left to right.

Examples:

$3 + 4 \times 5$		and	$(3 + 4) \times 5$	
$3 + 20$	There are no grouping symbols so multiply before adding		7×5	Add first since the addition is within grouping symbols
23	Add		35	Multiply

Relating Numerical Patterns

Your child will learn how to generate numerical patterns by using a rule, and relate the corresponding terms in two numerical patterns.

Pattern A starts at 0 and adds 2 to each term.

Pattern B starts at 0 and adds 6 to each term.

What is the corresponding term in Pattern B when the term in Pattern A is 16?

Make a table to show the first 5 terms in each pattern:

Pattern A	0	2	4	6	8
Pattern B	0	6	12	18	24

Notice that the terms in Pattern B are 3 times the corresponding terms in Pattern A. When 16 is the term in Pattern A, the corresponding term in Pattern B is $16 \times 3 = 48$.

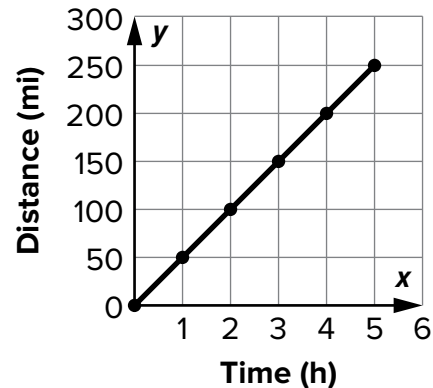
Graphing Numerical Patterns

Your child will learn how to write ordered pairs using the corresponding terms in two numerical patterns, and graph the points on a coordinate plane.

The table shows the number of hours driven on a car trip and the number of miles traveled. The ordered pairs are graphed on the coordinate plane.

How many hours will it take to travel 300 miles?

Number of hours	Number of miles	Ordered pair
1	50	(1, 50)
2	100	(2, 100)
3	150	(3, 150)
4	200	(4, 200)
5	250	(5, 250)



Extending the line of the graph, the point (6, 300) shows that it will take 6 hours to travel 300 miles.