What I Learned About Grade 9 Polynomials:

What is a polynomial?

A polynomial is a segment of a bunch of variables that are put together by using multiplication, division, addition, and subtraction. It can be a phrase of different combinations of variables and the terms combined. One term is your set of variables (typically defined when there is a symbol in between)

Ex. $2x+8y$

The + separates the 2$x$ and the $8y$ which are two different terms.

Vocabulary

***Coefficient***

A coefficient is a whole number that is in front of a variable. If you have 2$x $the 2 would be the coefficient. A coefficient is also a term for a number beside a base.

An additional type of coefficient is a Leading Coefficient, which is the exact same thing, except for the fact that it is the very first coefficient of the entire phrase. At all times there is only one leading coefficient.

Constant

A constant is a number in a phrase that is unaffected by the change of variables and exponents.

If you have a phrase that says $2x^{2}-7+8x\_{y}$ the -7 would be the constant because it never gets effected if the $2x^{2} $gets changed to $2y$ the rest of the terms get affected except for the -7.

Degree

A degree is the largest(greater) exponent in a phrase or sentence.

Ex. $x^{2}-18x^{4}$

In this phrase, the 4 would be the degree because it is greater than 2. But if you have something like 7 to the power of 8, it wouldn’t count as a degree because a degree is the largest exponent on a VARIABLE.

Adding/Subtracting Polynomials

When you add polynomials together, you must categorize each term by its variable(s).

Ex. $2x-8x^{2}+16+2x^{2}-6x-20 $

When you have such a large phrase like this, you are probably very overwhelmed. But just think about it as if it were algebra tiles, some cancel each other out and some are added together. \*Insert video of solving the problem here\*

Multiplying Polynomials

When you multiply polynomials, it will look something like this:

(17x + 4xy)(12 -8x +7y)

But I wouldn’t really think of it as multiplying, think of it as combining them together.

You want to pair up the variables and the constants together

Ex. 17x \* -8x \* 4xy \* 7y + 12

So then you would multiply all of those together:

3,808$x^{3}y^{2}$ + 12

(Wow that example was a lot bigger than I intended but I hope you get the idea)

Dividing Polynomials

When you divide polynomials, you want to basically do the same thing that you would do when multiplying them: you want to categorize them. You want to make sure that you match up all variables with each other.

Connections

I think that this unit is very similar to the exponent unit because we must work with different rules to multiply, divide, subtract, and add. I think that this unit would be harder to learn without knowing the concept of exponents because knowing what the exponent does and does not affect in a term is very crucial and could change your answer very drastically.