

Figure 8.25. Beyond Linear: Working with Polynomials Lesson Plan –Day 2

Date: 10/25

Standards:

Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials

Highlighted Standards for Mathematical Practice:

SMP1: Make sense of problems and persevere in solving them

SMP2: Reason abstractly and quantitatively

SMP5: Use appropriate tools strategically.

SMP6: Attend to precision.

SMP7: Look for and make use of structure.

SMP8: Look for and express regularity in repeated reasoning.

K: Vocabulary: degree (like terms), define “term” by the “what” and “how many”
Strategies for operations with polynomials

U: Polynomials are very similar to integers. Arithmetic with polynomials works in the same ways as arithmetic with integers. They are closed in addition, subtraction, and multiplication, just as are integers. (Algebra is grown up arithmetic.)

D: Operate on polynomials using multiple strategies.
Explain how operating on polynomials is like operating on integers.

Whole Class:

1. Review the algebraic repeated differences from yesterday, and add tables already filled in for 4th and 5th degrees. Discuss how the differences were found.
2. Ask students to brainstorm how they know which terms to combine or find differences of when simplifying expressions. How does this relate to adding and subtracting polynomials?
3. Introduce stations -

Stations: Students are required to do a minimum of 1 activity in addition/subtraction and 1 with multiplication.

Algebra Tiles: Practice addition, subtraction and multiplication with Algebra Tiles. Goal is to reinforce like terms with symbolic notation (e.g. $x \cdot x \neq 2x$ and $x + x \neq x^2$) and set up the area model (or box method) for multiplication.

Roll a Problem: Addition and Subtraction

Roll a Problem: Multiplication

Game Station: Polynomial Memory

Nike: Just Do It! Worksheet station

Closure: In what ways are working with polynomials and integers alike? Sticky note post up and grouping to summarize

Individual / formative assessment: Practice sheets