

Educational Epiphany™

Districtwide PLC Protocol for Mathematics

Teacher/Teacher Team:
Grade/Course: Algebra II
Date: Week of November 7, 2022

#	Planning Question	Teacher/Teacher Team Response
Algebra 2 Coherence Tool: Access the foundational standards to make connections to previously taught skills during the lesson introduction.		
1	Which state standard is your lesson progression addressing?	Lesson 4.4 – Adding and Subtracting Rational Expressions A2.A.SSE.A.1 Use the structure of an expression to identify ways to rewrite it. Foundational Standard: A1.A.SSE.A.1 A2.A.APR.C.4 Rewrite rational expressions in different forms. Foundational Standard: 7.NS.A.2b
2	What mathematical concepts are embedded in the state standard?	Understand that: - Rational expressions form a system analogous to the system of rational numbers and use that understanding to add and subtract rational expressions. - The properties of operations used to add and subtract rational numbers can be applied to adding and subtracting rational expressions. - Students use their knowledge of adding and subtracting rational numbers to add and subtract rational expressions. They first rewrite each expression in terms of a common denominator, then add or subtract the numerators.
3	What teacher knowledge, reminders, and misconceptions are assumed in the standard?	Knowledge: - Students should be able to identify the least common denominator of two rational expressions and use it to add and subtract the expressions. - Students should be able to add and subtract rational expressions in order to solve problems involving rate and time. - Students should understand how to rewrite rational expressions to find sums and differences. Reminders: - Students should understand the how to find the domain of a rational expression and its restrictions. Misconceptions: - Students may want to cancel common variables from the numerator and denominator that have different degrees. - Students may forget to or struggle with completely factoring to simplify. - Students may forget to consider restrictions on the domain.
4	What objective(s) must be taught? In what order? Why?	PBO: SWBAT rewrite expressions IOT represent the expressions in different forms. SWBAT rewrite rational expressions involving addition, subtraction, multiplication and/or division IOT represent the expressions in different forms. Lesson Objectives: - Understand that rational expressions form a system analogous to the system of rational numbers and use that understanding to add and subtract rational expressions.
5	What academic language must be taught before the	Academic Language: Describe – give an account in words of (someone or something) that includes all the relevant characteristics

Additional supporting and prerequisites standards are indicated on the curriculum map. In addition, this is not a comprehensive breakdown of each lesson for this weekly PLC protocol guide.

	teacher models for students? How will the academic language be taught and assessed?	• Explain – make clear by describing • Graph – a pictorial diagram used to show a numerical relationship using distinctive plots, lines, bars, etc. • Transformation – the mapping, or movement, of all points of a figure in a plane according to a common operation • Understand – comprehend; grasp the intended meaning of; infer something from information received • Expression – a group of mathematical numbers and/or symbols representing a number or quantity • Form – the visible shape or configuration of something • Rational – a real number that can be written as a ratio • Represent – state or point something out • Rewrite – to revise words, symbols, equations, expressions, etc. in a different way • Compound Fraction – A fraction that has one or more fractions in the numerator and/or denominator Instructional Practice 2: Strategies used to teach unfamiliar words will include: • 30 – 30 – 30 (common math-related word parts in the text, problem, or objective) • Point of Use Annotation of the Performance-Based Objective • Universal Language of Literacy • Word and Definition Walls • Word Parts • Context Clues • Point of Use Annotation of the Text (in Real-Time)
6	What practice problems are you planning to use for the I Do, We Do, You Do in Pairs and You Do Without Assistance? What did you learn from working the problems in advance of using them in class with students?	Station Rotation Model Suggestions Teacher-Led Station: Teachers can work with students on additional We Do problems. • 4-4 Reteach to Build Understanding Online Station: Students can engage with the Savvas Realize Critique & Explain, engage with MathXL for School: Additional Practice, or watch and engage with a Virtual Nerd Video • 4-4 Critique & Explain • 4-4 Do You Understand? • Virtual Nerd: How Do You Add Two Rational Expressions with Different Denominators? • Virtual Nerd: How Do You Simplify a Mixed Expression Over a Mixed Expression? Offline Station: Students would complete problems and exercises selected for the You Do in Pairs part of the lesson. • Lesson Performance Task #35 – Pg. 223 • 4-4 Additional Practice
7	What manipulatives might be integrated into the gradual release of responsibility (I Do, We Do, You Do in Pairs, You Do Without Assistance)? What did you learn from using the manipulatives in advance of using them in class with students?	Reference: Interactive Manipulatives • Didax Virtual Manipulatives • Savvas Math Tools • Realize Desmos (Graphing Calculator) • Realize Desmos (Scientific Calculator)

Additional supporting and prerequisites standards are indicated on the curriculum map. In addition, this is not a comprehensive breakdown of each lesson for this weekly PLC protocol guide.

8	What graphic organizer(s) might support students' conceptual understanding of the process outlined by the performance-based objective(s)?	Reference: • Graphic Organizer Templates • Google Drawing Graphic Organizers • Teacher Vision
---	---	---

Additional supporting and prerequisites standards are indicated on the curriculum map. In addition, this is not a comprehensive breakdown of each lesson for this weekly PLC protocol guide.