**Before and After**

**TRADITIONAL ALGEBRA UNIT, HS**

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| TOPIC: Associative, Commutative, and Distributive Properties; Order of Operations |
| ACTIVITIES  1. Direct instruction on the order of operations (PEMDAS): parentheses, exponents, multiplication, division,addition, subtraction.  2. In-class exercises on the order of operations.  3. Direct instruction on the associative and commutative properties: (a + b) + c = a + (b + c); ab = b Å~ a  4. In-class and online exercises on the associative and commutative properties: simplify –12x – 5x + 3a + x.  Justify each step.  5. Direct instruction, in class and online exercises, on the distributive property: a(b + c) = ab + ac; simplify  2(4x + y) – 2x  6. Review chapter in preparation for test. |
| ASSESSMENTS  1. Quiz on associative property, commutative property, and distributive property. For example, name the property a + b + 2 = a + 2 + b; write the product using the distributive property: 6($5.95) =  2. Quiz on order of operations: (3 + 4) 6 – 12. + 4  3. Chapter test on properties and rules.  4. Homework problems on the properties and rules. |

TRADITIONAL ES SOCIAL STUDIES UNIT

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| TOPIC: Westward Movement and Pioneer Life  Social Studies—3rd Grade |
| ACTIVITIES  1. Read textbook section—“Life on the Prairie.” Answer the end-of-chapter questions.  2. Read and discuss Sarah Plain and Tall. Complete a word-search puzzle of pioneer vocabulary terms  from the story.  3. Create a pioneer-life memory box with artifacts that reflect what life might be like for a child traveling west  or living on the prairie.  4. Prairie Day activities—Dress in pioneer clothes and complete seven learning stations:  a. Churn butter  b. Play 19th century game  c. Send letter home with sealing wax  d. Play “dress the pioneer” computer game  e. Make a corn-husk doll  f. Try quilting  g. Do tin punching |
| ASSESSMENTS  1. Quiz on pioneer vocabulary terms from Sarah Plain and Tall  2. Answers to end-of-chapter questions on pioneer life  3. Show-and-tell for memory box contents  4. Completion of seven learning stations during Prairie Day  5. Student reflections on the unit |

**TRADITIONAL LITERATURE UNIT, HS**

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| TOPIC: J. D. Salinger’s *Catcher in the Rye* |
| ACTIVITIES  1. Out of class reading of the text  2. In-class discussion of the novel over a two week period  3. Direct instruction on themes and conflicts faced by main character  4. List of vocabulary words and figurative language used in novel. Students define and use in sentences. |
| ASSESSMENTS  1. Quiz on characters 2. Summative test on novel 3. Quiz on vocabulary 4. Five paragraph essay on 1 of the themes of the novel |

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| **Algebra Unit, Altered**  TRANSFER  Students will be able to independently use their learning to . . .  • Solve problems by simplifying them, using equivalent statements based on the properties of real numbers and the order of operations.  • Analyze when any rule in any system (language, law, math) is an essential principle or merely conventional. |

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| ESSENTIAL QUESTIONS  Students will keep considering . . .  1. Why and when is it important to come to agreement on procedural rules (in mathematics, sports/games, language)?  2. What important rules and conventions are required to make algebra “work”? How can we distinguish between essential  properties and agreed-upon, but arbitrary, conventions?  3. Why and how do we simplify algebraic expressions? | ENDURING UNDERSTANDINGS  Students will understand that . . .  1. Mathematics is a language, and over the centuries mathematicians have come to agree on certain conventions, or ways of  doing things, so that we can communicate our intentions clearly and efficiently.  2. In mathematics, we accept certain truths as necessary to permit us to solve problems with logical certainty (e.g., the properties of real numbers), while other rules are conventions that we assume just for effective communication.  3. We can use the commutative, associative, and distributive properties to turn complex and unfamiliar |
| STUDENTS WILL KNOW (Content)  Students will know . . .  1. The commutative property and to which operation it applies  (and when it does not apply).  2. The associative property and to which operation it applies  (and when it does not apply).  3. The distributive property and to which operation it applies  (and when it does not apply).  4. The "order of operations" mathematicians use and why it is  needed.  5. What PEMDAS means.  6. What it means to simplify an expression. | STUDENTS WILL BE ABLE TO (Skills)  Students will be skilled at . . .  1. Recognizing and applying the commutative, associative, and  distributive properties to simplify algebraic expressions.  2. Using the convention of "order of operations" to perform  calculations and simplify algebraic expressions.  3. Recognizing situations where properties do not  apply or are optional.  4. Identifying equivalence that results from properties and  equivalence that is the result of computation.  5. Justifying steps in a simplifi cation or computation by citing  applicable laws, properties, and conventions. |

EVIDENCE OF LEARNING

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| PERFORMANCE TASK(S):  Students will show that they really understand by evidence of . . .  1. Their ability to realize and apply the difference between (a) necessary logical implications and (b) arbitrary but needed conventions.  2. Showing that they see why PEMDAS is a convention while the associative, commutative, and distributive properties are logical foundations.  3. Using their understanding of PEMDAS and each property to solve problems and explain why the answers and steps are correct.  Tasks might include:  • PR Campaign for the Rules. Mathematical rules have gotten a bad rap—they confuse people, are used to torture math students, and are too complicated (say critics). You believe that the rules are logical, necessary, and not so mysterious when you really understand  them. (The real blame lies not on the rules but on people who force students to memorize rules they don't really understand.)  To help remedy this unfortunate situation, you have been hired by the National Mathematics Education Association to design advertisements that explain to peers and younger students why math rules and properties work—and what would happen if we did  not have them. Use practical and interesting real-world examples to illustrate your points. Use print, graphics (e.g., poster, website), music (song or rap), or video (e.g., iMovie) to sell your ideas.  • Algebra Study Guide. Create a portion of a study guide to help future algebra students understand the associative, commutative, and distributive properties. Make up an original, real-world problem that involves one or more of the properties. Include a detailed  explanation of the mathematical procedures and reasoning to explain how each property is used to simplify and solve the problem.  OTHER EVIDENCE  Students will show they have achieved Stage 1 goals by . . .  • Providing written or oral response to one of the fi rst three essential questions.  • Developing a journal of Rules for Success. The students will keep an ongoing journal all year of accumulating insight about which  rules and properties will lead to success in the study of algebra. Include examples that show the rule or property correctly applied,  as well as common mistakes. Answer the question “Why can’t you divide by zero? Is that a convention or property?”  • Passing all quizzes from the textbook on basic properties and order of operations (as in the original unit). Students should also troubleshoot examples and explain misapplications of the convention or property, and—at the end—explain the difference between a property and a convention. |

**LITERATURE UNIT, ALTERED**

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| TRANSFER  Students will be able to independently use their learning to . . .  • Derive insight into human psychology as well as enjoyment from reading fiction.  • Apply ideas about form and content gained from one text to other texts and experiences.  • Effectively communicate in writing and speaking, mindful of audience, situation, purpose. |

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| ESSENTIAL QUESTIONS  Students will keep considering . . .  1. Is it possible—or desirable—to remain innocent? When is this healthy and when is it an unhealthy instinct?  2. Why do people sometimes push others away? When is “cool” cool and when is it uncool?  3. What makes someone a phony or genuine?  4. How can we tell who a character—or a real person—really is inside? | ENDURING UNDERSTANDINGS  Students will understand that . . .  • Innocence lost is an inherent part of growing up, and it is often what makes growing up happen, yet be so painful.  • People sometimes alienate themselves from others in an attempt to avoid pain. As a result, others may misunderstand them, only adding to the problem.  • Phoniness is often in the eye of the beholder: one man’s hero may be another man’s “phony.” Calling everyone “phony” may  well be a mask for one’s own insecurities.  • In the best fiction (and in real life) we learn about who people really are by motives and psychic states that we must (imperfectly)  infer from behavior and words.  • The best writers use a style and narrative details so well that they enable us to study and know another’s inner life. |
| STUDENTS WILL KNOW  • The plot, setting, and the main characters of the novel.  • Stylistic devices used by J. D. Salinger in The Catcher in the Rye (e.g., unreliable narrator, first person, slang).  • Needed background information about the culture of the 1950s. | STUDENTS WILL BE SKILLED AT  • Using interpretive/inferential reading strategies to better analyze literature on their own.  • Recognizing and using writing techniques and tactics for working in various genres and styles, for different audiences and  purposes.  • Developing a well-reasoned and refined hypothesis through a close reading of a text.  • Collaborating better with others, in small and large groups, to make sense of texts and address performance challenges. |

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| EVIDENCE OF LEARNING  PERFORMANCE TASK(S):  Students will show that they really understand by evidence of . . .  • Their ability to read between the lines of Holden’s first-person unreliable narrator account and to make sense of his behavior. Students should generalize, using the EQs, and transfer their consideration of the book’s themes to a modern-day situation in which understanding the adolescent psyche is also the aim. Ideas:  . A field guide to adolescents/Adolescents for Dummies. Using all the essential questions, students develop a handbook on observing and working with adolescents for their guidance counselors, teachers, and administrators. How can we find out who someone really is? When is behavior kids just being kids and when is it a sign of something seriously wrong? The guide should help adults better observe and recognize varied student behavior, as well as provide advice on how to handle puzzling/rebellious/alienated behavior effectively.  . Part 2: (optional) Helping Holden. Using your own handbook or that of another group, give advice to Holden about how to improve his life that is accurate and cast in such a way that he is most likely to hear it.  . Part 3: (optional) Write Holden’s likely response to your attempted counsel.  OTHER EVIDENCE:  Students will show they have achieved Stage 1 goals by . . .  Writing and speaking insightfully on the essential questions, while also showing that they have read the text carefully.  Essay: Students write on an essential question, using evidence from at least one other text. They must also explain to what extent they changed their mind over the course of the unit about the question, and why (including a comment from their first day’s prewriting).  • Is it possible—or desirable—to remain innocent? When is that a healthy and an unhealthy instinct?  • Why do people sometimes push others away? When is “cool” uncool?  • What makes someone a phony or genuine?  • How—and how well—does Salinger reveal Holden’s character?  Speaking and Listening: Rubrics for the various seminars, group work, and discussions will be used to provide students with feedback on their strengths and weaknesses as discussants, colleagues.  Quizzes: Three quizzes on the plot, settings, and main characters (not a major factor in the unit grade—just to ensure the reading is being done, and for making needed adjustments to learning). |

**TRY THIS ON A UNIT YOU TEACH**

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| TRANSFER FROM UNIT TO UNIT |

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| ESSENTIAL QUESTIONS | ENDURING UNDERSTANDINGS |
| STUDENTS WILL KNOW | STUDENTS WILL BE SKILLED AT |

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| EVIDENCE OF STUDENT LEARNING |