**Area Model Algebra**

**Multiplying Polynomials**

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**OVERVIEW:**

**Prerequisite Skills:**

* **Finding area of a rectangle**
* **Multiplying integers**
* **Combining Like Terms**

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**Learning Goals:** Students will use the area model algebra sim to determine the product of two polynomials.

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**Common Core Standards:** **CCSS.MATH.CONTENT.8.EE.C.7.B**

* **Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.**

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**Materials:**

* **PhET *Area Model Algebra* simulation**
* [**https://phet.colorado.edu/sims/html/area-model-algebra/latest/area-model-algebra\_en.html**](https://phet.colorado.edu/sims/html/area-model-algebra/latest/area-model-algebra_en.html)
* **Activity Sheet(s)**
* **Device**

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**Estimated Time: 2 Days - 45 minutes each**

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**Warmup: Day 1**

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| **Teacher Will . . . . .** | **Students Will . . . . .** | **Time** |
| Take attendance, take care of housekeeping issues | Write 3-5 sentences in your journal describing what you learned yesterday. | 5 minutes  3 min writing / 2 minutes discussion & sharing |

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**Simulation Introduction: Open play / Exploration**

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| **Teacher Will . . . . .** | **Students Will . . . . .** | **Time** |
| Pass out PhET lesson for students. Circulate around classroom listening in on conversations, asking clarifying questions. | Openly explore sim walking through specific buttons / features (use page 1 of the activity sheets) | 25 minutes |

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| Ask for volunteers / Choose students to share (use random name picker app) | Share discoveries (project and explain findings) | 10 minutes |

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| **Going Forward Day 1:** | Share questions / wonderings / observations | 5 minutes |

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**Warmup: Day 2**

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| **Teacher Will . . . . .** | **Students Will . . . . .** | **Time** |
| Take attendance, take care of housekeeping issues. Lead quick share out of ideas - directing toward distributive property | Brainstorm list of vocabulary, examples, drawings of topics from yesterday. | 5 minutes |

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**Guided Exploration:**

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| **Teacher Will . . . . .** | **Students Will . . . . .** | **Time** |
| Circulate throughout the classroom, asking students for clarification / explanation of work. Encouraging students to “hold that thought” - and “be ready to share with the class” | Work independently on Activity Sheet, then share side one with table partners. Repeat for side two. | 25 minutes |

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**Discussion and Summary:**

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| **Teacher Will . . . . .** | **Students Will . . . . .** | **Time** |
| Facilitate discussion. Encourage students to use mathematical language in explanations. | Reflect on activity sheet. Be prepared to share connections between divided rectangles and distributive property | 10 minutes |

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**Informal Assessment:**

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| **Teacher Will . . . . .** | **Students Will . . . . .** | **Time** |
| Post prompt. Circulate throughout classroom redirecting students and answering questions. | Write 3 questions in your journal that you have about today’s lesson. What would you like to know? What worked well? What did you struggle with? | 5 minutes |

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