**DeKalb County Schools Lesson Plan for Coordinate Algebra A**

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| **Unit Name:**  Relationships Between Quantities | **Lesson Number:** Unit 1- Day 6 |
| **Key Standard(s) Addressed:**  MGSE9-12.N.Q.1 Use units of measure (linear, area, capacity, rates, and time) as a way to understand problems: o a. Identify, use, and record appropriate units of measure within context, within data displays, and on graphs; o b. Convert units and rates using dimensional analysis (English-to-English and Metric-to-Metric without conversion factor provided and between English and Metric with conversion factor); o c. Use units within multi-step problems and formulas; interpret units of input and resulting units of output.  MGSE9-12.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling. Given a situation, context, or problem, students will determine, identify, and use appropriate quantities for representing the situation.  MGSE9-12.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. For example, money situations are generally reported to the nearest cent (hundredth). Also, an answers’ precision is limited to the precision of the data given.  MGSE9‐12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.  MGSE9‐12.A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients, in context.  MGSE9‐12.A.SSE.1b Given situations which utilize formulas or expressions with multiple terms and/or factors, interpret the meaning (in context) of individual terms or factors.  MGSE9‐12.A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, simple rational, and exponential functions (integer inputs only).  MGSE9-12.A.CED.4 Rearrange formulas to highlight a quantity of interest using the same reasoning as in solving equations. Examples: Rearrange Ohm’s law V = IR to highlight resistance R; Rearrange area of a circle formula A = π r2 to highlight the radius r.  MGSE9‐12.A.REI.1 Using algebraic properties and the properties of real numbers, justify the steps of a simple, one-solution equation. Students should justify their own steps, or if given two or more steps of an equation, explain the progression from one step to the next using properties.  MGSE9‐12.A.REI.3: Solve linear equations and inequalities in one variable including equations with coefficients represented by letters. For example, given ax + 3 = 7, solve for x. | |
| **Essential Question(s):** How can you use variables to write an expression that represents a quantity in terms of its context? | **Materials Needed:** Notebook & Pencil |
| **Overall Agenda with Time:**   * Sponge: 10 min * Standards & Sponge Review: 5 min * Composing: 15 min * Crafting: 40 min * Reflecting: 15 min | **Sponge/Activating Activity: Allotted Time 10 min**  Number and Quantity |
| **Crafting: Allotted Time – 15 min**  Students will discuss and define variables, constants, evaluate, expression, and equations. A variable is a letter or symbol used to represent a value that can change. A constant is a value that does not change. An expression may contain variables, constants, and/or operations. To evaluate and expression is to find its value. Students will describe their importance to algebra and defend their responses | |
| **Composing: Allotted Time - 40min**  Students will begin translating algebraic symbols to words, translating words to algebraic symbols, and evaluating algebraic expressions.  Coordinate Algebra Text: p. 9: 1-31 | |
| **Reflecting: Allotted Time - 15 min**  Students will list key words for each operation (+, -, \*, & /) and explain the difference between a variable and a constant. | |
| **Differentiation Strategy:** Thumbs Up/ Thumbs Down | **Homework:** |

**DeKalb County Schools Lesson Plan for Coordinate Algebra A**

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| **Unit Name:**  Relationships Between Quantities | **Lesson Number:** Unit 1- Day 7 |
| **Key Standard(s) Addressed:**  MGSE9-12.N.Q.1 Use units of measure (linear, area, capacity, rates, and time) as a way to understand problems: o a. Identify, use, and record appropriate units of measure within context, within data displays, and on graphs; o b. Convert units and rates using dimensional analysis (English-to-English and Metric-to-Metric without conversion factor provided and between English and Metric with conversion factor); o c. Use units within multi-step problems and formulas; interpret units of input and resulting units of output.  MGSE9-12.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling. Given a situation, context, or problem, students will determine, identify, and use appropriate quantities for representing the situation.  MGSE9-12.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. For example, money situations are generally reported to the nearest cent (hundredth). Also, an answers’ precision is limited to the precision of the data given.  MGSE9‐12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.  MGSE9‐12.A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients, in context.  MGSE9‐12.A.SSE.1b Given situations which utilize formulas or expressions with multiple terms and/or factors, interpret the meaning (in context) of individual terms or factors.  MGSE9‐12.A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, simple rational, and exponential functions (integer inputs only).  MGSE9-12.A.CED.4 Rearrange formulas to highlight a quantity of interest using the same reasoning as in solving equations. Examples: Rearrange Ohm’s law V = IR to highlight resistance R; Rearrange area of a circle formula A = π r2 to highlight the radius r.  MGSE9‐12.A.REI.1 Using algebraic properties and the properties of real numbers, justify the steps of a simple, one-solution equation. Students should justify their own steps, or if given two or more steps of an equation, explain the progression from one step to the next using properties.  MGSE9‐12.A.REI.3: Solve linear equations and inequalities in one variable including equations with coefficients represented by letters. For example, given ax + 3 = 7, solve for x. | |
| **Essential Question(s):** How can you use addition or subtraction to solve equations? | **Materials Needed:** Notebook & Pencil |
| **Overall Agenda with Time:**   * Sponge: 10 min * Standards & Sponge Review: 5 min * Composing: 15 min * Crafting: 40 min * Reflecting: 15 min | **Sponge/Activating Activity: Allotted Time 10 min**  Georgia Milestones EOC |
| **Crafting: Allotted Time – 15 min**  Students will discuss and define solution of an equation and isolating the variable. A solution of an equation is a value of the variable that makes the equation true. A variable is isolated when it appears by itself one side of an equation. | |
| **Composing: Allotted Time - 40min**  Students will solve equations by using addition, subtraction, and adding the opposite. Students will develop a list of steps for solving equations using addition, subtraction, or adding the opposite.  Coordinate Algebra Text: p. 16: 1-20 | |
| **Reflecting: Allotted Time - 15 min**  What is the goal when solving equations? What happens when you add or subtract the same amount on both sides of the equation? How do you know when to add and when to subtract? | |
| **Differentiation Strategy:** Individual Response Boards | **Homework:** |

**DeKalb County Schools Lesson Plan for Coordinate Algebra A**

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| **Unit Name:**  Relationships Between Quantities | **Lesson Number:** Unit 1- Day 8 |
| **Key Standard(s) Addressed:**  MGSE9-12.N.Q.1 Use units of measure (linear, area, capacity, rates, and time) as a way to understand problems: o a. Identify, use, and record appropriate units of measure within context, within data displays, and on graphs; o b. Convert units and rates using dimensional analysis (English-to-English and Metric-to-Metric without conversion factor provided and between English and Metric with conversion factor); o c. Use units within multi-step problems and formulas; interpret units of input and resulting units of output.  MGSE9-12.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling. Given a situation, context, or problem, students will determine, identify, and use appropriate quantities for representing the situation.  MGSE9-12.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. For example, money situations are generally reported to the nearest cent (hundredth). Also, an answers’ precision is limited to the precision of the data given.  MGSE9‐12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.  MGSE9‐12.A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients, in context.  MGSE9‐12.A.SSE.1b Given situations which utilize formulas or expressions with multiple terms and/or factors, interpret the meaning (in context) of individual terms or factors.  MGSE9‐12.A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, simple rational, and exponential functions (integer inputs only).  MGSE9-12.A.CED.4 Rearrange formulas to highlight a quantity of interest using the same reasoning as in solving equations. Examples: Rearrange Ohm’s law V = IR to highlight resistance R; Rearrange area of a circle formula A = π r2 to highlight the radius r.  MGSE9‐12.A.REI.1 Using algebraic properties and the properties of real numbers, justify the steps of a simple, one-solution equation. Students should justify their own steps, or if given two or more steps of an equation, explain the progression from one step to the next using properties.  MGSE9‐12.A.REI.3: Solve linear equations and inequalities in one variable including equations with coefficients represented by letters. For example, given ax + 3 = 7, solve for x. | |
| **Essential Question(s):** How can you use addition or subtraction to solve equations? | **Materials Needed:** Notebook & Pencil |
| **Overall Agenda with Time:**   * Sponge: 10 min * Standards & Sponge Review: 5 min * Composing: 15 min * Crafting: 40 min * Reflecting: 15 min | **Sponge/Activating Activity: Allotted Time 10 min**  Number and Quantity |
| **Crafting: Allotted Time – 15 min**  Students will discuss and define the addition property of equality and the subtraction property of equality The addition or equality states you cana dd the same number to both sides of an equation and the statement will still be true. The subtraction property of equality states you can subtract the same number from both sides of an equation and the statement will still be true. | |
| **Composing: Allotted Time - 40min**  Students will continue solving equations using the method of their choice. Given a problem set, students will determine the best approach.  Coordinate Algebra Text: p. 16: 21-48 | |
| **Reflecting: Allotted Time - 15 min**  Describe how the Addition and Subtraction Properties of Equality are like a balanced scale. | |
| **Differentiation Strategy:** Individual Response Boards | **Homework:** |

**DeKalb County Schools Lesson Plan for Coordinate Algebra A**

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| **Unit Name:**  Relationships Between Quantities | **Lesson Number:** Unit 1- Day 9 |
| MGSE9-12.N.Q.1 Use units of measure (linear, area, capacity, rates, and time) as a way to understand problems: o a. Identify, use, and record appropriate units of measure within context, within data displays, and on graphs; o b. Convert units and rates using dimensional analysis (English-to-English and Metric-to-Metric without conversion factor provided and between English and Metric with conversion factor); o c. Use units within multi-step problems and formulas; interpret units of input and resulting units of output.  MGSE9-12.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling. Given a situation, context, or problem, students will determine, identify, and use appropriate quantities for representing the situation.  MGSE9-12.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. For example, money situations are generally reported to the nearest cent (hundredth). Also, an answers’ precision is limited to the precision of the data given.  MGSE9‐12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.  MGSE9‐12.A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients, in context.  MGSE9‐12.A.SSE.1b Given situations which utilize formulas or expressions with multiple terms and/or factors, interpret the meaning (in context) of individual terms or factors.  MGSE9‐12.A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, simple rational, and exponential functions (integer inputs only).  MGSE9-12.A.CED.4 Rearrange formulas to highlight a quantity of interest using the same reasoning as in solving equations. Examples: Rearrange Ohm’s law V = IR to highlight resistance R; Rearrange area of a circle formula A = π r2 to highlight the radius r.  MGSE9‐12.A.REI.1 Using algebraic properties and the properties of real numbers, justify the steps of a simple, one-solution equation. Students should justify their own steps, or if given two or more steps of an equation, explain the progression from one step to the next using properties.  MGSE9‐12.A.REI.3: Solve linear equations and inequalities in one variable including equations with coefficients represented by letters. For example, given ax + 3 = 7, solve for x. | |
| **Essential Question(s):** How can you use addition or subtraction to solve equations? | **Materials Needed:** Notebook & Pencil |
| **Overall Agenda with Time:**   * Sponge: 10 min * Standards & Sponge Review: 5 min * Composing: 15 min * Crafting: 40 min * Reflecting: 15 min | **Sponge/Activating Activity: Allotted Time 10 min** Word Problem |
| **Crafting: Allotted Time – 15 min**  Students will discuss and define area of squares, rectangles, triangles. A formula is a literal equation that states a rule for a relationship among quanitites. Teacher will introduce composite figures. A composite figure is a figure that is composed of basic shapes. You can divide composite figures into combinations of squares, rectangles, and triangles to find their areas. | |
| **Composing: Allotted Time - 40min**  Students will create composite figures and compute their respective areas.  Connecting Algebra to Geometry Task | |
| **Reflecting: Allotted Time - 15 min**  Divide the figure in Exercise 1differently than the first time you found the area. Show algebraically that the area is  still the same. | |
| **Differentiation Strategy:** Hands-on Manipulatives | **Homework:** |

**DeKalb County Schools Lesson Plan for Coordinate Algebra A**

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| **Unit Name:**  Relationships Between Quantities | **Lesson Number:** Unit 1- Day 10 |
| MGSE9-12.N.Q.1 Use units of measure (linear, area, capacity, rates, and time) as a way to understand problems: o a. Identify, use, and record appropriate units of measure within context, within data displays, and on graphs; o b. Convert units and rates using dimensional analysis (English-to-English and Metric-to-Metric without conversion factor provided and between English and Metric with conversion factor); o c. Use units within multi-step problems and formulas; interpret units of input and resulting units of output.  MGSE9-12.N.Q.2 Define appropriate quantities for the purpose of descriptive modeling. Given a situation, context, or problem, students will determine, identify, and use appropriate quantities for representing the situation.  MGSE9-12.N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. For example, money situations are generally reported to the nearest cent (hundredth). Also, an answers’ precision is limited to the precision of the data given.  MGSE9‐12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.  MGSE9‐12.A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients, in context.  MGSE9‐12.A.SSE.1b Given situations which utilize formulas or expressions with multiple terms and/or factors, interpret the meaning (in context) of individual terms or factors.  MGSE9‐12.A.CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, simple rational, and exponential functions (integer inputs only).  MGSE9-12.A.CED.4 Rearrange formulas to highlight a quantity of interest using the same reasoning as in solving equations. Examples: Rearrange Ohm’s law V = IR to highlight resistance R; Rearrange area of a circle formula A = π r2 to highlight the radius r.  MGSE9‐12.A.REI.1 Using algebraic properties and the properties of real numbers, justify the steps of a simple, one-solution equation. Students should justify their own steps, or if given two or more steps of an equation, explain the progression from one step to the next using properties.  MGSE9‐12.A.REI.3: Solve linear equations and inequalities in one variable including equations with coefficients represented by letters. For example, given ax + 3 = 7, solve for x. | |
| **Essential Question(s):** How can you use addition or subtraction to solve equations? | **Materials Needed:** Pencil |
| **Overall Agenda with Time:**   * Sponge: 10 min * Standards & Sponge Review: 5 min * Composing: 15 min * Crafting: 40 min * Reflecting: 15 min | **Sponge/Activating Activity: Allotted Time 10 min**  KWL Chart |
| **Crafting: Allotted Time 30 min**  Quiz Review : Students will identify misconceptions with solving equations using addition and subtraction. | |
| **Composing: Allotted Time – 40 min**  Quiz: Students will demonstrate mastery of solving equations using addition and subtraction. | |
| **Reflecting: Allotted Time - 5 min**  What types of equations will be solved next? | |
| **Differentiation Strategy:** | **Homework:** |