Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade K			
Activity/Lesson	**State**	**Standards**	
Finding the Center of Gravity Using Rulers	AR	MA.K.M.13.K.4	Name common tools for measurement (balance scale, ruler and thermometer)
Finding the Center of Gravity Using Rulers	AR	MA.K.DAP.14.K.1	Explore and discuss data collection by collecting, organizing and displaying physical objects
Finding the Center of Gravity Using Plumb Lines	AR	MA.K.M.13.K.4	Name common tools for measurement (balance scale, ruler and thermometer)
Changing the Center of Gravity Using Moment Arms	AR	MA.K.M.13.K.4	Name common tools for measurement (balance scale, ruler and thermometer)
Changing the Center of Gravity Using Moment Arms	AR	MA.K.DAP.14.K.1	Explore and discuss data collection by collecting, organizing and displaying physical objects
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 1			
Activity/Lesson	**State**	**Standards**	
Finding the Center of Gravity Using Rulers	AR	MA.1.M.12.1.8	Recognize attributes of measurement (length, weight, capacity and mass) and identify appropriate tools used to measure each attribute
Finding the Center of Gravity Using Rulers	AR	MA.1.M.13.1.7	Select the appropriate non-standard measurement tools for length, capacity and mass
Finding the Center of Gravity Using Plumb Lines	AR	MA.1.M.12.1.8	Recognize attributes of measurement (length, weight, capacity and mass) and identify appropriate tools used to measure each attribute
Finding the Center of Gravity Using Plumb Lines	AR	MA.1.M.13.1.7	Select the appropriate non-standard measurement tools for length, capacity and mass
Changing the Center of Gravity Using Moment Arms	AR	MA.1.A.6.1.1	Explore the use of a chart or table to organize information and to understand relationships
Changing the Center of Gravity Using Moment Arms	AR	MA.1.M.12.1.8	Recognize attributes of measurement (length, weight, capacity and mass) and identify appropriate tools used to measure each attribute
Changing the Center of Gravity Using Moment Arms	AR	MA.1.M.13.1.7	Select the appropriate non-standard measurement tools for length, capacity and mass

Changing the Center of Gravity Using Moment Arms	AR	MA.1.DAP.14.1.1	Identify the purpose for data collection and collect, organize and display physical objects for describing the results
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 2			
Activity/Lesson	**State**	**Standards**	
Finding the Center of Gravity Using Rulers	AR	MA.2.M.13.2.10	Select appropriate customary measurement tools (rulers, balance scale, cup and thermometer) for situations involving length, capacity, and mass
Finding the Center of Gravity Using Rulers	AR	MA.2.M.13.2.11	Estimate and measure length, capacity/volume and mass with non-standard units to recognize the need for standard units
Finding the Center of Gravity Using Plumb Lines	AR	MA.2.M.13.2.11	Estimate and measure length, capacity/volume and mass with non-standard units to recognize the need for standard units
Changing the Center of Gravity Using Moment Arms	AR	MA.2.M.13.2.10	Select appropriate customary measurement tools (rulers, balance scale, cup and thermometer) for situations involving length, capacity, and mass
Changing the Center of Gravity Using Moment Arms	AR	MA.2.M.13.2.11	Estimate and measure length, capacity/volume and mass with non-standard units to recognize the need for standard units
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 3			
Activity/Lesson	**State**	**Standards**	
Finding the Center of Gravity Using Rulers	AR	MA.3.M.13.3.8	Use appropriate customary measurement tools for length, capacity and mass
Finding the Center of Gravity Using Rulers	AR	MA.3.DAP.16.3.1	Make predictions for a given set of data
Finding the Center of Gravity Using Plumb Lines	AR	MA.3.M.13.3.8	Use appropriate customary measurement tools for length, capacity and mass
Changing the Center of Gravity Using Moment Arms	AR	MA.3.M.13.3.8	Use appropriate customary measurement tools for length, capacity and mass
Changing the Center of Gravity Using Moment Arms	AR	MA.3.DAP.16.3.1	Make predictions for a given set of data

Changing the Center of Gravity Using Moment Arms	AR	MA.3.DAP.17.3.3	Use physical models, pictures, and organized lists to find combinations of two sets of objects
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 4			
Activity/Lesson	**State**	**Standards**	
Finding the Center of Gravity Using Rulers	AR	MA.4.DAP.16.4.1	Make predictions for a given set of data
Finding the Center of Gravity Using Plumb Lines	AR	MA.4.DAP.16.4.1	Make predictions for a given set of data
Changing the Center of Gravity Using Moment Arms	AR	MA.4.A.5.4.3	Use a variable to represent an unknown quantity in a number sentence involving contextual situations and find the value
Changing the Center of Gravity Using Moment Arms	AR	MA.4.A.6.4.1	Create a chart or table to organize given information and to understand relationships and explain the results
Changing the Center of Gravity Using Moment Arms	AR	MA.4.DAP.16.4.1	Make predictions for a given set of data
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Jet Propulsion	AR	MA.5.A.5.5.2	Write expressions containing one variable (a letter representing an unknown quantity) using rules for addition and subtraction
Jet Propulsion	AR	MA.5.DAP.14.5.2	Collect numerical and categorical data using surveys, observations and experiments that would result in bar graphs, line graphs, line plots and stem-and-leaf plots
Vectoring	AR	MA.5.A.6.5.1	Draw conclusions and make predictions, with and without appropriate technology, from models, tables and line graphs
Vectoring	AR	MA.5.DAP.14.5.2	Collect numerical and categorical data using surveys, observations and experiments that would result in bar graphs, line graphs, line plots and stem-and-leaf plots
Center of Gravity, Pitch, Yaw	AR	MA.5.NO.1.5.1.a.4	Use models and visual representations to develop the concepts of the following: Fractions (locations on ruler (benchmark fractions)

Center of Gravity, Pitch, Yaw	AR	MA.5.NO.1.5.1 .c.1	Use models and visual representations to develop the concepts of the following: Percents (part-to-100)
Center of Gravity, Pitch, Yaw	AR	MA.5.M.12.5.1	Identify and select appropriate units and tools to measure
Fuel Efficiency	AR	MA.5.NO.1.5.1 .a.4	Use models and visual representations to develop the concepts of the following: Fractions (locations on ruler (benchmark fractions)
Fuel Efficiency	AR	MA.5.A.5.5.2	Write expressions containing one variable (a letter representing an unknown quantity) using rules for addition and subtraction
Fuel Efficiency	AR	MA.5.A.5.5.3	Select, write and evaluate algebraic expressions with one variable by substitution
Fuel Efficiency	AR	MA.5.M.12.5.1	Identify and select appropriate units and tools to measure
Fuel Efficiency	AR	MA.5.M.13.5.2	Determine which unit of measure or measurement tool matches the context for a problem situation
Fuel Efficiency	AR	MA.5.DAP.15. 5.1	Interpret graphs such as line graphs, double bar graphs, and circle graphs
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Jet Propulsion	AR	MA.6.A.5.6.2	Write simple algebraic expressions using appropriate operations (+, -, x, /) with one variable
Vectoring	AR	MA.6.A.5.6.2	Write simple algebraic expressions using appropriate operations (+, -, x, /) with one variable
Vectoring	AR	MA.6.M.13.6.6	Use estimation to check the reasonableness of measurements obtained from use of various instruments (including angle measures)
Vectoring	AR	MA.6.DAP.16. 6.1	Use observations about differences in data to make justifiable inferences
Center of Gravity, Pitch, Yaw	AR	MA.6.NO.1.6.1	Demonstrate conceptual understanding to find a specific percent of a number, using models, real-life examples, or explanations
Center of Gravity, Pitch, Yaw	AR	MA.6.NO.3.6.7	Determine the percent of a number and solve related problems in real world situations
Center of Gravity, Pitch, Yaw	AR	MA.6.M.12.6.1	Identify and select appropriate units and tools from both systems to measure
Fuel Efficiency	AR	MA.6.A.5.6.2	Write simple algebraic expressions using appropriate operations (+, -, x, /) with one variable

Fuel Efficiency	AR	MA.6.M.12.6.1	Identify and select appropriate units and tools from both systems to measure
Fuel Efficiency	AR	MA.6.DAP.14.6.3	Construct and interpret graphs, using correct scale, including line graphs and double-bar graphs
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 7			
Activity/Lesson	**State**	**Standards**	
Jet Propulsion	AR	MA.7.DAP.14.7.1	Identify different ways of selecting samples and compose appropriate questions
Vectoring	AR	MA.7.DAP.14.7.1	Identify different ways of selecting samples and compose appropriate questions
Center of Gravity, Pitch, Yaw	AR	MA.7.NO.1.7.1	Relate, with and without models and pictures, concepts of ratio, proportion, and percent, including percents less than 1 and greater than 100
Center of Gravity, Pitch, Yaw	AR	MA.7.NO.3.7.3	Determine when an estimate is sufficient and use estimation to decide whether answers are reasonable in problems including fractions and decimals
Center of Gravity, Pitch, Yaw	AR	MA.7.M.12.7.1	Understand, select and use the appropriate units and tools (metric and customary) to measure length, weight, mass and volume to the required degree of accuracy for real world problems
Fuel Efficiency	AR	MA.7.NO.3.7.3	Determine when an estimate is sufficient and use estimation to decide whether answers are reasonable in problems including fractions and decimals
Fuel Efficiency	AR	MA.7.A.7.7.1	Use, with and without appropriate technology, tables and graphs to compare and identify situations with constant or varying rates of change
Exploring the Extreme			
2004 Mathematics			
Curriculum Framework			
Arkansas Mathematics			
Grade 8			
Activity/Lesson	**State**	**Standards**	
Jet Propulsion	AR	MA.8.A.6.8.3	Differentiate between independent/dependent variables given a linear relationship in context
Vectoring	AR	MA.8.A.4.8.4	Use tables, graphs, and equations to identify independent/dependent variables (input/output)

Vectoring	AR	MA.8.A.6.8.3	Differentiate between independent/dependent variables given a linear relationship in context
Vectoring	AR	MA.8.M.12.8.1	Understand, select and use, with and without appropriate technology, the appropriate units and tools to measure angles, perimeter, area, surface area and volume to solve real world problems
Center of Gravity, Pitch, Yaw	AR	MA.8.NO.3.8.3	Use estimation to solve problems involving rational numbers; including ratio, proportion, percent (increase or decrease) then judge the reasonableness of solutions
Center of Gravity, Pitch, Yaw	AR	MA.8.M.12.8.1	Understand, select and use, with and without appropriate technology, the appropriate units and tools to measure angles, perimeter, area, surface area and volume to solve real world problems
Fuel Efficiency	AR	MA.8.NO.3.8.3	Use estimation to solve problems involving rational numbers; including ratio, proportion, percent (increase or decrease) then judge the reasonableness of solutions
Fuel Efficiency	AR	MA.8.A.6.8.2	Represent, with and without appropriate technology, linear relationships concretely, using tables, graphs and equations
Fuel Efficiency	AR	MA.8.A.6.8.4	Represent, with and without appropriate technology, simple exponential and/or quadratic functions using verbal descriptions, tables, graphs and formulas and translate among these representations
Fuel Efficiency	AR	MA.8.M.12.8.1	Understand, select and use, with and without appropriate technology, the appropriate units and tools to measure angles, perimeter, area, surface area and volume to solve real world problems
Fuel Efficiency	AR	MA.8.M.13.8.1	Draw and apply measurement skills with fluency to appropriate levels of precision