

Pushing the Envelope			
1997 Mathematics			
Content Standards			
California Mathematics			
Grade 5			
Activity/Lesson	State	Standards	
Types of Engines (pgs. 11-23)	CA	MA.5.AF.1.2	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results: Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
Chemistry (pgs. 25-41)	CA	MA.5.AF.1.2	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results: Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
Chemistry (pgs. 25-41)	CA	MA.5.MG.1.3	Students understand and compute the volumes and areas of simple objects: Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeter [cm ³], cubic meter [m ³], cubic inch [in ³], cubic yard [yd ³]) to compute the volume of rectangular solids.
Chemistry (pgs. 25-41)	CA	MA.5.MG.1.4	Students understand and compute the volumes and areas of simple objects: Differentiate between, and use appropriate units of measures for, two- and three-dimensional objects (i.e., find the perimeter, area, volume).
Physics and Math (pgs. 43-63)	CA	MA.5.AF.1.2	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results: Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.
Physics and Math (pgs. 43-63)	CA	MA.5.AF.1.3	Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results: Know and use the distributive property in equations and expressions with variables.
Pushing the Envelope			
1997 Mathematics			
Content Standards			
California Mathematics			
Grade 6			
Activity/Lesson	State	Standards	
History of Aviation Propulsion (pgs. 5-9)	CA	MA.6.AF.2.3	Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions: Solve problems involving rates, average speed, distance, and time.

Types of Engines (pgs. 11-23)	CA	MA.6.AF.3.1	Students investigate geometric patterns and describe them algebraically:Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = \frac{1}{2}bh$, $C = \pi d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).
Chemistry (pgs. 25-41)	CA	MA.6.AF.3.1	Students investigate geometric patterns and describe them algebraically:Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = \frac{1}{2}bh$, $C = \pi d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).
Physics and Math (pgs. 43-63)	CA	MA.6.NS.1.2	Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages: Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b , a to b , $a:b$).
Physics and Math (pgs. 43-63)	CA	MA.6.AF.1.1	Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results: Write and solve one-step linear equations in one variable.
Physics and Math (pgs. 43-63)	CA	MA.6.AF.1.2	Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results: Write and evaluate an algebraic expression for a given situation, using up to three variables.
Rocket Activity (pgs. 69-75)	CA	MA.6.AF.3.1	Students investigate geometric patterns and describe them algebraically:Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = \frac{1}{2}bh$, $C = \pi d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).
Pushing the Envelope			
1997 Mathematics			
Content Standards			
California Mathematics			
Grade 7			
Activity/Lesson	State	Standards	

Chemistry (pgs. 25-41)	CA	MA.7.MG.1.1	Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems: Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimeters).
Chemistry (pgs. 25-41)	CA	MA.7.MG.2.3	Students compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects. They know how perimeter, area, and volume are affected by changes of scale: Compute the length of the perimeter, the surface area of the faces, and the volume of a three-dimensional object built from rectangular solids. Understand that when the lengths of all dimensions are multiplied by a scale factor, the surface area is multiplied by the square of the scale factor and the volume is multiplied by the cube of the scale factor.
Physics and Math (pgs. 43-63)	CA	MA.7.AF.1.1	Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs: Use variables and appropriate operations to write an expression, an equation, an inequality, or a system of equations or inequalities that represents a verbal description (e.g., three less than a number, half as large as area A).
Physics and Math (pgs. 43-63)	CA	MA.7.AF.1.4	Students express quantitative relationships by using algebraic terminology, expressions, equations, inequalities, and graphs: Use algebraic terminology (e.g., variable, equation, term, coefficient, inequality, expression, constant) correctly.
Pushing the Envelope			
1997 Mathematics			
Content Standards			
California Mathematics			
Grades 8-12 (Algebra I)			
Activity/Lesson	State	Standards	
Physics and Math (pgs. 43-63)	CA	MA.8-12.AI.15.0	Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems.