
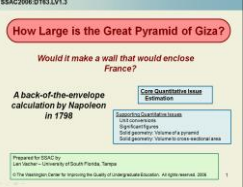

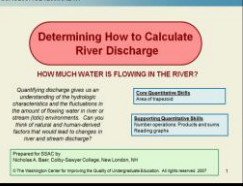

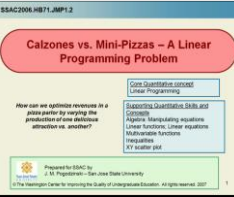
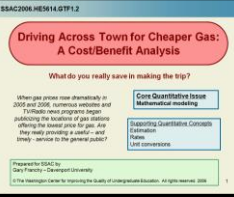
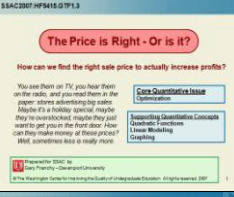
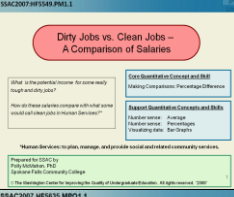
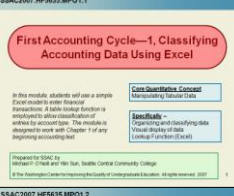
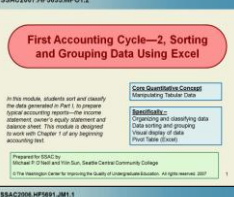

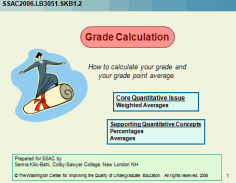
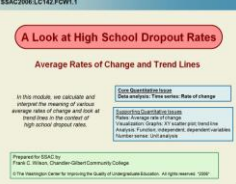
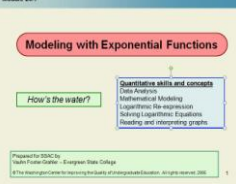
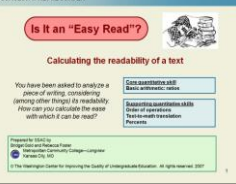
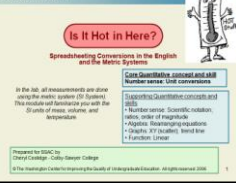
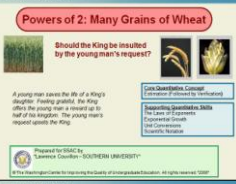
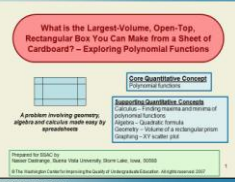
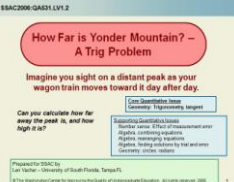


Code Number	Title Page (Link)	Title	Author	Quantitative Skills	
				Title Slide	SSAC Tags
<b>BF, Psychology</b>					
SSAC2007 BF448 SKB1.3		<i>The "Perfect" Date -- Decision making-A ranking and rating spreadsheet to find the "perfect" date</i>	Kilic-Bahi, Semra	<u>Weighted sums</u> , absolute cell, sort function	Number Operations; Sorting Data
<b>DT, History, Africa</b>					
SSAC2006 DT63 LV1.3		<i>How Large is the Great Pyramid of Giza? -- Would it make a wall that would enclose France?</i>	Vacher, Len	<u>Estimation</u> , unit conversion, significant figures, volume of a pyramid, ratio of volume to cross-section area	Unit Conversions; Significant Figures; Estimation; Orders of Magnitude; Scientific Notation; Text to Math Translation; Squares & Rectangles; Cubes & Rectangular Solids; Other Solid Figures
<b>E, History of the Americas</b>					
SSAC2007 E184 BG2.1		<i>How Diverse Are We? - Comparing racial composition of NYC and USA, 1980-2000</i>	Garam, Bernadette	<u>Percentages</u> , proportion, percent change, stacked bar graphs, line graphs	Proportion; Percentages; Percent Change; Estimation; Reading Graphs; Stacked Bar Graphs; Line Graphs; Creating & Manipulating Tabular Data
<b>GB, Physical geography</b>					
SSAC2007 GB1205 NAB1.1		<i>Exercise to Calculate River Discharge -- How much water is flowing in the river?</i>	Baer, Nicholas A.	<u>Area of trapezoid</u> , number operations: products and sums, reading graphs	Number Operations: Addition & Multiplication; Reading Graphs; Estimation; Other Plane Figures (Trapezoid); Gathering Data; Creating & Manipulating Tabular Data
<b>HB, Social sciences, economics, general</b>					
SSAC2005 HB235 SKB1.1		<i>Index Numbers: Gasoline and Inflation - Why we need the Consumer Price Index</i>	Kilic-Bahi, Semra	<u>Ratio and proportion</u> , relative change, percentage, XY scatter plot	Ratios; Proportion; Percentages; Comparisons; Percent Change; Percent Increase; XY Scatter Plots; Creating & Manipulating Tabular Data

<p>SSAC2006 HB71 JMP1.2</p> 	<p><i>Calzones vs. Mini Pizzas: A Linear Programming Problem</i></p>	<p>Pogodzinski, Mike</p>	<p><u>Linear Programming</u>, manipulating equations, linear equations, multivariable functions, inequalities, XY scatter plots</p>	<p>XY Scatter Plots; Manipulating Equations; Slope; Intercept; Linear Programming; Linear Inequalities; Linear Functions, Linear Equations; Multivariable Functions; Finding Maximum/ Minimum;</p>
<p><b>HE, Transportation and communications</b></p>				
<p>SSAC2006 HE5614 GTF1.2</p> 	<p><i>Driving across Town for Cheaper Gas: A Cost/Benefit Analysis -- What do you really save in making the trip?</i></p>	<p>Franchy, Gary</p>	<p><u>Mathematical modeling</u>, estimation, rates, unit conversions</p>	<p>Proportion; Unit Conversions; Rates; Estimation; Gathering Data; Text to Math Translation; Forward Modeling</p>
<p><b>HF, Social sciences, commerce (including accounting)</b></p>				
<p>SSAC2007 HF5415 GF1.3</p> 	<p><i>The Price is Right - Or is it? -- How can we find the right sale price to actually increase profits?</i></p>	<p>Franchy, Gary</p>	<p><u>Optimization</u>, quadratic functions, linear modeling, graphing</p>	<p>Number Operations; Rates; XY Scatter Plots; Quadratic Function; Forward Modeling; Finding Maximum/Minimum; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2007 HF5529 PM1.1</p> 	<p><i>Dirty Jobs vs. Clean Jobs -- A Comparison of Salaries</i></p>	<p>McMahon, Polly</p>	<p><u>Making comparisons: percentage difference</u>, average, percentages, bar graphs</p>	<p>Percentages; Average; Rates; Percent Difference; Gathering Data; Bar Graphs; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2007 HF5635 MPO1.1</p> 	<p><i>First Accounting Cycle, 1 -- Classifying Accounting Data Using Excel</i></p>	<p>O'Neill, Michael P.</p>	<p><u>Manipulating Tabular Data</u>, organizing and classifying data, visual display of data, lookup function (Excel)</p>	<p>Organizing &amp; Classifying Data; Lookup Function</p>
<p>SSAC2007 HF5635 MPO1.2</p> 	<p><i>First Accounting Cycle, 2 -- Sorting and Grouping Data Using Excel</i></p>	<p>O'Neill, Michael P.</p>	<p><u>Manipulating Tabular Data</u>, organizing and classifying data, data sorting and grouping, visual display of data, pivot table (Excel)</p>	<p>Organizing &amp; Classifying Data; Data Sorting &amp; Grouping; Pivot Table</p>
<p>SSAC2006 HF5691 JM1.1</p> 	<p><i>Understanding Mortgage Payments -- I am going to pay HOW MUCH for this house?</i></p>	<p>Murphy, Jody</p>	<p><u>Multivariable function</u>, forward modeling, percentages, column graphs</p>	<p>Percentages; Rates; Stacked Column Graph; Multivariable Function; Forward Modeling; Creating &amp; Manipulating Tabular Data</p>
<p><b>HG, Finance</b></p>				

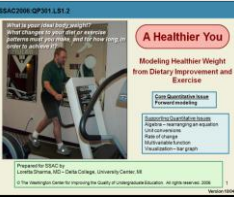
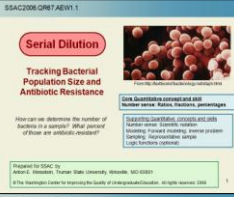
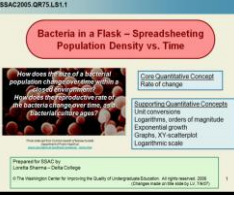

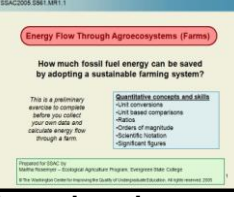
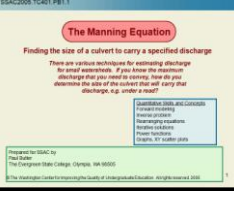
SSAC2005 HG1621 GTF1.1		<i>Simple vs. Compound Interest -- Spreadsheets the difference</i>	Franchy, Gary	<u>Forward modeling</u> , arithmetic growth, geometric growth, linear function, exponential function, XY scatter plot	Percentage; Rate of Change; Comparisons; XY Scatter Plot; Line- & Curve- Fitting; Linear Functions; Exponential Function; Exponential Growth; Forward Modeling; Creating & Manipulating Tabular Data
SSAC2005 HG179 SB1.1		<i>Creating a Household Budget -- The starting point for all savings, investing and spending decisions.</i>	Baldwin, Sarah	<u>Recording and using data</u> , average, unit conversion, percentage, pie chart	Percentage; Unit Conversions; Average; Estimation; Gathering Data; Pie Chart; Creating & Manipulating Tabular Data
SSAC2007 HG179 JM2.1		<i>Investing for Retirement - - Planning your retirement early is your ticket to maintaining your life style after 60.</i>	Meyninsse, Joseph	<u>Forward modeling</u> , exponential growth, percentages, data analysis, estimation, visual display of data: XY plots	Percentage; Rate of Change; Estimation; Text to Math Translation; XY Scatter Plot; Manipulating Equations; Exponential Growth; Power Function; Forward Modeling; Creating & Manipulating Tabular Data
<b>HN, Social history and conditions, social problems, social reform</b>					
SSAC2007 HN49 MA1.2		<i>The Digital Divide: A Data Analysis Activity Using Subtotals</i>	Allen, Maryann S.	<u>Weighted average</u> , formulas, rates, data analysis (subtotals)	Percentage; Average; Weighted Average; Rates; Sorting Data; Subtotals
<b>HV, Social pathology; social and public welfare; criminology</b>					
SSAC2005 HV8079 RS1.1		<i>What Time Did the Potato Die?</i>	Sunderman, Rebecca	<u>Exponential decay function</u> , unit conversions, trendline	Unit Conversions; Reading Graph; XY Scatter Plot; Line- & Curve- Fitting; Manipulating Equation; Linear Trends; Goodness of Fit (R2); Exponential Function; Exponential Decay; Inverse Problem; Creating & Manipulating Tabular Data
<b>JF, Political institutions and public administration</b>					
SSAC2007 JF1075 AM1.1		<i>Getting Your Fair Share -- Jelly beans, student groups, and Alexander Hamilton</i>	Montgomery, Aaron	<u>Ratio and proportion; percentage</u> , estimation, interpolation	Number Operation: Division; Proportion; Percentages; Estimation
<b>LB, Education, practice</b>					
SSAC2007 LB2328 YS1.1		<i>What's the Difference? -- Calculating the difference in wages for a bookkeeper (AA degree) vs. a cashier (no college degree)</i>	Sun, Yilin	<u>Number operations</u> , number skills: sum, subtraction, addition, and multiplication, number sense: comparison contrast, visualizing data: bar graphs	Number Operations: Subtraction, Addition; Rates; Multiplication; Comparison; Text to Math Translation; Column Graphs; Creating & Manipulating Tabular Data

SSAC2006 LB3051 SKB1.2	 <p><b>Grade Calculation</b></p> <p>How to calculate your grade and your grade point average.</p> <p><b>Core Quantitative Skills</b> Weighted Averages</p> <p><b>Supporting Quantitative Concepts</b> Percentages</p> <p>Prepared by SSAC for Siena College, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>Grade Calculation -- How to calculate your grade and your grade point average.</i></p>	Kilic-Bahi, Semra	<p><u>Weighted average</u>, percentage</p>	Percentage; Average; Weighted Average; Lookup Function
<b>LC, Education, social aspects</b>					
SSAC2006 LC142 FCW1.1	 <p><b>A Look at High School Dropout Rates</b></p> <p>Average Rates of Change and Trend Lines</p> <p><b>Core Quantitative Skills</b> Rate of change</p> <p><b>Supporting Quantitative Concepts</b> Trend Lines, Unit of change, Average Rates of Change, Linear Regression, Scatter Plots, Unit Analysis</p> <p>Prepared by SSAC for Purdue University, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>A Look at Highschool Dropout Rates -- Average rates of change and trend lines</i></p>	Wilson, Frank	<p><u>Rate of change</u>, concept of function, unit analysis, XY scatter plot, trendline</p>	Percentage; Units & Dimensions; Average; Rate of Change; XY Scatter Plot; Line- & Curve- Fitting; Concept of Function; Slope & Linear Trends
<b>PN, Literature (including Star Trek)</b>					
SSAC2005 PN1992 VFG1.1	 <p><b>Modeling with Exponential Functions</b></p> <p>How's the water?</p> <p><b>Quantitative skills and concepts</b> Data Analysis Mathematical Modeling Logarithms: the equation Solving Logarithmic Equations Reading and interpreting graphs</p> <p>Prepared by SSAC for Siena College, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>Modeling Exponential Bacteria Growth on Planet Riker</i></p>	Foster-Grahler, Vauhn	<p><u>Data analysis</u>, mathematical modeling, logarithmic re-expression, solving logarithmic equations, reading and interpreting graphs</p>	Rates; Logarithms; Reading Graphs; XY Scatter Plot; Line- & Curve- Fitting; Goodness of Fit (R2); Exponential Function; Exponential Growth; Logarithmic Function; Forward Modeling; Creating & Manipulating Tabular Data
SSAC2007 PN204 BG1.1	 <p><b>Is It an "Easy Read"?</b></p> <p>Calculating the readability of a text</p> <p><b>Core Quantitative Skills</b> Data Analysis</p> <p><b>Supporting Quantitative Concepts</b> Number sense: Unit conversions Percentages</p> <p>Prepared by SSAC for Siena College, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>Calculating Readability -- Is it an "easy read"?</i></p>	Gold, Bridget and Foster, Rebecca	<p><u>Ratios</u>, order of operations, text-to-math translation, percents</p>	Number Operations; Order of Operations; Percentages; Ratios; Text to Math Translation
<b>Q, Science, general</b>					
SSAC2006 Q199 CC1.2	 <p><b>Is It Hot in Here?</b></p> <p>Spreadsheeting Conversions in the English and the Metric Systems</p> <p><b>Core Quantitative Concept and Skill</b> Number sense: Unit conversions</p> <p><b>Supporting Quantitative Concepts and Skills</b> Number sense: Scientific notation, Order of magnitude Algebra: Solving equations Quality of analysis, word sense Function: Linear</p> <p>Prepared by SSAC for Siena College, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>Is it Hot in Here? -- Spreadsheeting conversions in the English and metric systems</i></p>	Coolidge, Cheryl	<p><u>Unit conversion</u>, scientific notation, ratio, order of magnitude, manipulating equations, XY scatter plot, trendline, linear function</p>	Number Operations; Ratio; Unit Conversions; Rate; Order of Magnitude; Scientific Notation; Text to Math Translation; XY Scatter Plots; Line- & Curve- Fitting; Manipulating Equations; Slope & Intercept; Linear Trend; Forward Modeling; Creating & Manipulating Tabular Data
<b>QA, Mathematics</b>					
SSAC2007 QA139 LC1.1	 <p><b>Powers of 2: Many Grains of Wheat</b></p> <p>Should the King be insulted by the young man's request?</p> <p><b>Core Quantitative Concept</b> Exponential Growth</p> <p><b>Supporting Quantitative Skills</b> Exponential Growth Unit Conversions Scientific Notation</p> <p>Prepared by SSAC for Siena College, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>Powers of 2: Many Grains of Wheat</i></p>	Couvillon, Lawrence	<p><u>Estimation</u>, The Laws of Exponents, exponential growth, unit conversions, scientific notation</p>	Unit Conversions; Significant Figures; Percent Difference; Estimation; Logarithms; Order of Magnitude; Scientific Notation; Text to Math Translation; Exponential Growth; Power Function; Forward Modeling; Cubes & Rectangular Solids; Creating & Manipulating Tabular Data
SSAC2007 QA154 ND1.1	 <p><b>What is the Largest Volume: Open-Top, Rectangular Box You Can Make from a Sheet of Cardboard? - Exploring Polynomial Functions</b></p> <p><b>Core Quantitative Concept</b> Polynomial Functions</p> <p><b>Supporting Quantitative Concepts</b> Polynomial Functions Algebra: Quadratic Formula Geometry: Volume of a rectangular prism Calculus: Finding Maximum/Minimum Calculus: XY scatter plot</p> <p>Prepared by SSAC for Siena College, College Career College, New London Mt &amp; The Navigator Center for training in quality of college-ready education. All rights reserved 2007</p>	<p><i>Maximizing the Volume of a Box: Exploring Polynomial Functions</i></p>	Dastrange, Nasser	<p><u>Polynomial functions</u>, calculus-finding maxima and minima of polynomial functions, algebra- quadratic formula, geometry- volume of a rectangular prism, graphing- XY scatter plot</p>	Dimensions; XY Scatter Plots; Manipulating Equations; Zeroes of a Function; Quadratic Function; Polynomial Functions; Forward Modeling; Inverse Problem; Rectangles; Rectangular Solid; Derivatives & Integrals; Finding Maximum/Minimum; Creating & Manipulating Tabular Data

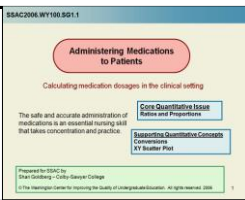
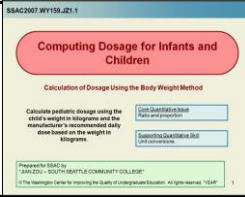
SSAC2005 QA21 EG1.1	 <p><b>Archimedes and Pi</b> Using a spreadsheet to calculate <math>\pi</math></p> <p><b>What is it?</b> The value of a circle's circumference to its diameter is the same no matter how large the circle is.</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2005 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>Archimedes and Pi -- Using a spreadsheet to calculate Pi</i>	Gaze, Eric	<u>Ratio and proportion</u> , estimation, limits, Pythagorean Theorem, iteration, Logic Function IF	Number Operations: Addition & Multiplication; Ratios & Proportions; Estimation; Forward Modeling; Circles (Circumference); Triangles & Trigonometry; Other Plane Figures; Iteration; Creating & Manipulating Tabular Data
SSAC2006 QA531 LV1.2	 <p><b>How Far is Yonder Mountain? -- A Trig Problem</b> Imagine you sight on a distant peak as your wagon train moves toward it day after day.</p> <p>Can you calculate how far away the peak is, and how high it is?</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2006 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>How Far is Yonder Mountain -- A trig problem</i>	Vacher, Len	<u>Trigonometry</u> -- tangent, manipulating and combining equations, effect of measurement error, radians, finding a solution by trial and error	Unit Conversion; Text to Math; Effect of Uncertainty; Manipulating Equations; Inverse Problem; Circle (Radians); Trigonometric Ratios
SSAC2006 QA76 MA1.1	 <p><b>Illegal Software Installation</b> Tracking Software Piracy Rates Around the World</p> <p>Most of the copyrighted software installed on PCs around the world is pirated. In fact, a recent study found that 80% of the world has the most aggressive piracy practices!</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2006 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>Illegal Software Installation: Tracking software piracy rates around the world</i>	Allen, Maryann S.	<u>Data presentation</u> , data interpretation, rates, absolute vs relative quantities, pivot table	Ratio; Rate; Cluster Column Graph; Stacked Column Graph; Pivot Table
<b>QC, Physics (including atmospheric science)</b>					
SSAC2006 QC879.8 RC1.1	 <p><b>Carbon Sequestration in Campus Trees</b> Can trees help offset carbon dioxide buildup from human activities?</p> <p>This module calculates the amount of carbon that is absorbed in one campus spot as a tree grows in a year.</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2006 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>Carbon Sequestration in Campus Trees -- Can trees help offset carbon dioxide buildup from human activities?</i>	Cole, Robert S.	<u>Power function</u> , order of magnitude & scientific notation, allometric relationships, interpretation of exponential and logarithmic expressions, percentage increase	Significant Figures; Percent Increase; Logarithms; Scientific Notation; XY Scatter Plot (Homework); Logarithmic Scale; Line- & Curve- Fitting; Sampling; Manipulating Equations; Slope; Intercept; Exponential Function; Logarithmic Function; Power Function; Creating & Manipulating Tabular Data
<b>QD, Chemistry</b>					
SSAC2007 QD31 WT1.2	 <p><b>How Sweet Is Your Tea?</b> Practical experience with solutions and concentration</p> <p>This module serves as an introduction to the concept of concentration. If also available, students use Microsoft Excel to calculate the amount of sugar and solvent required to prepare a specified solution.</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2007 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>How Sweet Is Your Tea? -- Practical experience with solutions and concentration</i>	Thomas, Bill	<u>Ratio and proportion</u> , manipulating algebraic equations, estimation, unit conversion, order of magnitude, scientific notation	Ratio & Proportion; Unit Conversions; Estimation; Order of Magnitude; Scientific Notation; Text to Math Translation; Manipulating Equations
SSAC2005 QD450 CC1.1	 <p><b>Chemical Equilibrium</b> What are the characteristics of an equilibrium reaction?</p> <p>Many important biological and environmental processes take place in equilibrium. Can you see how equilibrium is reached? Can you see how equilibrium is reached? Can you see how equilibrium is reached?</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2005 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>Chemical Equilibrium -- What are the characteristics of equilibrium reactions</i>	Coolidge, Cheryl	<u>Rate of change</u> , percentage change, XY scatter plot, exponential decay, geometric progression	Ratios (Homework); Rate of Change; Percent Change; XY Scatter Plots; Line- and Curve- Fitting; Exponential Decay; Forward Modeling; Creating & Manipulating Tabular Data
SSAC2005 QD451 WT1.1	 <p><b>Calibrating a Pipettor</b></p> <p>How accurate is your pipetting? What are the sources of error? What does it mean to calibrate a piece of equipment, and how do you do it?</p> <p><b>Core Quantitative Issue: Ratios and Proportions</b> Estimation Calculation Data Quantity: Pythagorean Theorem Equation Logic: Iteration</p> <p>Prepared by SSCAC to: SSAC2005 © The Math Learning Center for Improving the Quality of One-to-One Education. All rights reserved. 2008</p>	<i>Calibrating a Pipettor</i>	Thomas, Bill	<u>Precision vs. accuracy</u> , mean, standard deviation, bar and scatter plots, relative error, percent error, mass vs. volume	Ratio & Proportion; Unit Conversion; Relative Error; Precision vs Accuracy; Effects of Uncertainty; Bar Graph; XY Scatter Plot; Mean; Standard Deviation; Sampling; Manipulating Equation; Creating & Manipulating Tabular Data

<p>SSAC2005 QD461 RW1.1</p>	<p><b>The Mole in Chemistry</b></p> <p>How do you determine the number of atoms or molecules in everyday items?</p> <p><i>How do we determine "quantity" in chemistry? How do we generally measure it? What are the units and how do we convert between them?</i></p> <p>Prepared for SSAC by: Rachel Wang - Spokane Falls Community College © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>The Mole in Chemistry - How do you determine the number of atoms or molecules in everyday items?</i></p>	<p>Wang, Rachel</p>	<p><u>Unit conversion</u>, scientific notation, significant figures</p>	<p>Number Operations; Unit Conversions; Significant Figures; Scientific Notation</p>
<p>SSAC2007 QD561 AH1.1</p>	<p><b>Buffer Capacity in Chemical Equilibrium</b></p> <p>How long can you hyperventilate before severe alkalosis sets in?</p> <p><i>How about pH of a chemical buffer? What is a buffer range. In this module we will investigate the chemical characteristics of the buffer and estimate its physiological limitations. This module will improve your understanding of buffer capacity through practical analysis of the Henderson-Hasselbalch equation.</i></p> <p>Prepared for SSAC by: Dr. Armando Padua - Lamar University College © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>Buffer Capacity in Chemical Equilibrium: How long can you hyperventilate before severe alkalosis sets in?</i></p>	<p>Herbelin, Armando</p>	<p><u>Manipulating logarithmic equations</u>, manipulating equations, solving simultaneous equations, what-if analysis, dimensional analysis, logarithms, scientific notation, rate of change, slope, XY scatter plots</p>	<p>Ratio; Percentage; Rate of Change; Logarithms; Scientific Notation; Text to Math Translation; XY Scatter Plots; Manipulating Equations; Slope; Solving Simultaneous Equations; Logarithmic Equation; Forward Modeling; Creating &amp; Manipulating Tabular Data</p>
<p><b>QE, Geology</b></p>					
<p>SSAC2004 QE420 LV1.1</p>	<p><b>How Large is a Ton of Rock?</b></p> <p>Thinking about Rock Density</p> <p><i>The density of most rocks is in the range 2.7-3.0 g/cm<sup>3</sup>. Do you have a ball for this quantity?</i></p> <p>Prepared for SSAC by: Jan Weber - University of South Florida, Tampa, FL © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>How Large is a Ton of Rock? -- Thinking about rock density</i></p>	<p>Vacher, Len</p>	<p><u>Weighted average</u>, unit conversion, manipulating equations, volume of cube and sphere, inverse problem</p>	<p>Ratio (Homework); Unit conversion; Weighted Average; Manipulating Equations; Forward Modeling ("What if"); Inverse Problem; Sphere Solids; Cube Solids</p>
<p>SSAC2006 QE445 DKM1.1</p>	<p><b>From Isotopes to Temperature</b></p> <p>Working with a Temperature Equation</p> <p><i>Back of our quantitative information about past climates comes from analysis and interpretation of stable isotopes in geologic materials. In this module you will explore the link with the law of conservation of energy, the relationship of isotopic ratios to the temperature of the water in which it was.</i></p> <p>Prepared for SSAC by: Doree McCue - University of South Florida © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>From Isotopes to Temperature: Working with A Temperature Equation</i></p>	<p>McGee, Dorien</p>	<p><u>Data analysis</u>, ratios, equation manipulation, correlation and regression, coefficient of determination, correlation coefficient, line and column graphs, xy scatter plots</p>	<p>Ratios; Average; Comparisons; Column Graph; Line Graph; XY Scatter Plot; Standard Deviation; Line- &amp; Curve- Fitting; Goodness of Fit (R<sup>2</sup>); Manipulating Equations; Linear Trends; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2005 QE514 CES1.1</p>	<p><b>Radioactive Decay and Popping Popcorn - Understanding the Rate Law</b></p> <p><i>Radioactive determination of age is crucial to understanding geologic time. Radioactive age dating is possible because radioactive decay follows a rate law. What is that rate law?</i></p> <p>Prepared for SSAC by: C. E. Sanger - University of South Florida, Tampa © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>Radioactive Decay and Popping Popcorn - Understanding the rate law</i></p>	<p>Stringer, Christina</p>	<p><u>Exponential decay function</u>, geometric progression, dimensions vs. units, rate of change, differential equation for the exponential function, logarithmic scale, XY scatter plot, trendline, probability: law of large numbers</p>	<p>Ratio &amp; Proportions; Dimensions; Rate of Change; XY Scatter Plot; Logarithm Scale; Line- &amp; Curve- Fitting; Goodness of Fit (R<sup>2</sup>); Probability; Exponential Function; Exponential Decay; Forward Modeling; Differential Equations including Difference Equation; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2005 QE531 LRW1.1</p>	<p><b>Earthquake Magnitude</b></p> <p>How can we compare the sizes of earthquakes?</p> <p><i>What is Richter magnitude? How does magnitude relate to the energy released by an earthquake?</i></p> <p>Prepared for SSAC by: Jan Weber - Spokane Falls Community College, Spokane, WA © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>Earthquake Magnitude -- How can we compare the sizes of earthquakes?</i></p>	<p>Wetzel, Laura</p>	<p><u>Orders of Magnitude and Logarithmic scale</u>, scientific notation, ratio, logarithm, manipulating equations, linear graph, semilog graph</p>	<p>Number Operations: Multiplication; Ratios; Logarithms; Order of Magnitude; Scientific Notation; Logarithmic Scale; XY Scatter Plot; Line- &amp; Curve- Fitting; Manipulating Equations; Exponential Function; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2006 QE531 EB1.1</p>	<p><b>Shaking Ground</b></p> <p>Linking Earthquake Magnitude and Intensity</p> <p><i>How does the magnitude of an earthquake relate to intensity? How does shaking relate to intensity and acceleration?</i></p> <p>Prepared for SSAC by: Pat Oler - Spokane Community College, Spokane, WA © The National Center for Improving the Quality of Postsecondary Education. All rights reserved. 2008.</p>	<p><i>Shaking Ground: Linking Earthquake Magnitude and Intensity</i></p>	<p>Baer, Eric</p>	<p><u>Forward modeling</u>, logarithmic scales, unit conversion, roman numerals, exponential function, power function, area of circle, XY scatter plots, reading graphs, map scale</p>	<p>Unit Conversion; Rates; Reading Graphs; XY Scatter Plots; Logarithmic Scales; Exponential Function; Power Function; Multivariable Function; Forward Modeling; Circle (Area); Creating &amp; Manipulating Tabular Data</p>

<p>SSAC2006 QE531 LV1.6</p>	 <p><b>Frequency of Large Earthquakes</b> Introducing Some Elementary Statistical Descriptors</p>	<p><i>Frequency of Large Earthquakes -- Introducing some elementary statistical descriptors</i></p>	<p>Vacher, Len</p>	<p><u>Exploratory stastical descriptors</u>, mean, median, mode, variance, standard deviation, percentiles, quartiles, interpolation, normal distribution</p>	<p>Number Operation: Addition; Proportion; Interpolation; Average; Rate; XY Scatter Plots; Mean; Median; Mode; Standard Deviation; Variance; Range; Quartiles; Percentiles; Probability; Normal Distribution; Sampling; Sorting Data</p>
<p>SSAC2004 QE539 LV1.5</p>	 <p><b>Earth's Planetary Density -- Constraining What We Think of the Earth's Interior</b></p>	<p><i>Earth's Planetary Density -- Constraining what we think about the Earth's interior</i></p>	<p>Vacher, Len</p>	<p><u>Weighted average</u>, unit conversion, volume of sphere, inverse problem, forward modeling, concept of integral</p>	<p>Units; Weighted Ave; Scientific Notation; Pie Chart; Manipulating Equations; Forward Modeling; Inverse Problem; Sphere Volume; Analytical Derivative; Numerical Integral</p>
<p>SSAC2006 QE697 PB1.2</p>	 <p><b>Global Climate: Estimating How Much Sea Level Changes when Continental Ice Sheets Form</b></p>	<p><i>Global Climate: Ice Volume and Sea Level Change</i></p>	<p>Butler, Paul</p>	<p><u>Estimation</u>, significant figures, manipulating equations, area of circle, surface area of sphere</p>	<p>Percentage; Unit Conversions; Significant Figures; Estimation; Scientific Notation; Manipulating Equations; Circles (Area); Sphere (Surface Area)</p>
<p><b>QH, Natural history - Biology</b></p>					
<p>SSAC2007 QH352 BS1.2</p>	 <p><b>Introducing Endangered Birds to Ulva Island, NZ -- Modeling exponential and logistic growth of the yellowhead population</b></p>	<p><i>Introducing Endangered Birds to Ulva, NZ -- Modeling exponential and logistic growth of the yellowhead population</i></p>	<p>Steele, Ben</p>	<p><u>Forward modeling</u>, rate of change, XY scatterplots, exponential growth, logistic growth</p>	<p>Rate of Change; Reading Graphs; XY Scatter Plots; Exponential Function; Logistic Equation; Forward Modeling; Finding Maximum; Differential Equation including Difference Equation; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2007 QH352 DM1.1</p>	 <p><b>Chaos in Population Dynamics</b> Understanding chaos in the logistic model</p>	<p><i>Chaos in Population Dynamics</i></p>	<p>McAvity, David</p>	<p><u>Modeling with difference equations</u>, XY scatter plots, iteration, exponential and logistic growth, cobweb diagrams, curve fitting and trendlines</p>	<p>Ratio; Rate; XY Scatter Plots; Line- &amp; Curve- Fitting; Goodness of Fit (R<sup>2</sup>); Exponential Function; Logistic Equation; Multivariable Function; Forward Modeling; Difference Equation; Iteration; Creating &amp; Manipulating Tabular Data</p>
<p>SSAC2006 QH540 BS1.1</p>	 <p><b>Predator-Prey Interactions</b> Modeling the number of fishers and porcupines in New Hampshire</p>	<p><i>Predator-Prey Interactions -- Modeling the number of fishers and porcupines in New Hampshire</i></p>	<p>Steele, Ben</p>	<p><u>Forward modeling</u>, analyzing equations, difference equations, XY scatter plot</p>	<p>Rate of Change; XY Scatter Plots; Forward Modeling; Difference Equation; Creating &amp; Manipulating Tabular Data</p>
<p><b>QP, Physiology</b></p>					
<p>SSAC2007 QP141 YJK1.1</p>	 <p><b>Minimizing Cost while Meeting Nutritional Requirements -- An Example of Linear Programming</b></p>	<p><i>Minimizing Cost while Meeting Nutritional Needs -- An example of linear programming</i></p>	<p>Kuo, Yu-Ju</p>	<p><u>Linear Programming</u>, linear equations, linear inequalities, multivariable function: inclined plane, level lines (contours), Excel Solver</p>	<p>Visual Display of Data; Solving Simultaneous Equations; Linear Programming; Linear Inequalities; Contours; Forward Modeling; Finding Maximum/ Minimum; Lookup Function</p>

<p>SSAC2006 QP301 LS1.2</p> 	<p><i>A Healthier You -- Modeling a healthy weight from dietary improvement and exercise</i></p>	<p>Sharma, Loretta</p>	<p><u>Forward modeling</u>, unit conversion, manipulating equations, rate of change, bar graph</p>	<p>Number Operations: Subtraction; Unit Conversions; Rate of Change; Bar Graph; Manipulating Equations; Multivariable Function; Forward Modeling; Creating &amp; Manipulating Tabular Data</p>
<p><b>QR, Microbiology</b></p>				
<p>SSAC2006 QR67 AEW1.1</p> 	<p><i>Serial dilution -- Tracking bacterial population size and antibiotic resistance</i></p>	<p>Weisstein, Tony</p>	<p><u>Ratio, fractions, percentage</u>, scientific notation, forward modeling, inverse problem, representative sample, logic function (optional)</p>	<p>Ratio; Proportion; Percentage; Scientific Notation; Creating Equations; Text to Math Translation; Sampling; Forward Modeling; Inverse Problem</p>
<p>SSAC2005 QR75 LS1.1</p> 	<p><i>Bacteria in a Flask: Spreadsheets Population Density vs. Time</i></p>	<p>Sharma, Loretta</p>	<p><u>Rate of change</u>, unit conversion, logarithms, order of magnitude, exponential growth, rate of change, XY scatter plots, logarithmic scale</p>	<p>Unit Conversions; Rate of Change; Logarithms, Order of Magnitude; Reading graph; XY Scatter Plot; Logarithmic Scale; Line- &amp; Curve- Fitting; Maximum Slope; Exponential Growth; Finite Differences; Organizing &amp; Classifying Data</p>
<p><b>QV, Pharmacology</b></p>				
<p>SSAC2007 QV4 CC1.3</p> 	<p><i>Why Don't I Feel Better Yet? Examining the effect of dose, time interval, and elimination rate on attaining a therapeutic drug level</i></p>	<p>Coolidge, Cheryl</p>	<p><u>Forward modeling (what-if analysis)</u>, multivariable function, visual display and interpretation of data: XY scatter plots, creating equations, two way tables</p>	<p>Percentage; Rate of Change; Creating Equations; XY Scatter Plots; Two-way Table; Forward Modeling; Creating &amp; Manipulating Tabular Data</p>
<p><b>S, Agriculture</b></p>				
<p>SSAC2005 S561 MR1.1</p> 	<p><i>Energy Flow through Agroecosystems (Farms)</i></p>	<p>Rosemeyer, Martha</p>	<p><u>Unit conversion</u>, ratios, significant figures, orders of magnitude, scientific notation</p>	<p>Ratios; Percentage; Unit Conversions; Significant Figures; Rates; Orders of Magnitude; Scientific Notation; Pie Charts</p>
<p><b>TC, Hydraulic engineering</b></p>				
<p>SSAC2005 TC401 PB1.1</p> 	<p><i>The Manning Equation</i></p>	<p>Butler, Paul</p>	<p><u>Forward modeling</u>, XY scatter plot, rearranging equations, power function, inverse problem, iterative solution</p>	<p>Proportion; Dimensions; Rate; XY Scatter Plot; Line- &amp; Curve- Fitting; Manipulating Equations; Power Functions; Forward Modeling; Inverse Problem; Circle (Area &amp; Circumference); Iteration; Creating &amp; Manipulating Tabular Data</p>
<p><b>WY, Nursing</b></p>				



<p>SSAC2006 WY100 SG1.1</p>	 <p>SSAC2006 WY100 SG1.1</p> <p><b>Administering Medications to Patients</b></p> <p>Calculating medication dosages in the clinical setting</p> <p>The safe and accurate administration of medications is an essential nursing skill that takes concentration and practice.</p> <p>Supports the Quantitative Reasoning Competency: <b>XY Scatter Plot</b></p> <p>Prepared for SSAC by Shari Goldberg, CMAA, Director of College of The Hastings Center for Improving the Quality of Undergraduate Education. All rights reserved. 2006</p>	<p><i>Administering Medications to Patients -- Calculating Dosages in the Clinical Setting</i></p>	<p>Goldberg, Shari</p>	<p><u>Ratio and proportion</u>, unit conversion, XY scatter plot</p>	<p>Ratios &amp; Proportions; Unit Conversions; Text to Math Translation; Reading Graphs; XY Scatter Plots; Manipulating Equations</p>
<p>SSAC2007 WY159 JZ1.1</p>	 <p>SSAC2007 WY159 JZ1.1</p> <p><b>Computing Dosage for Infants and Children</b></p> <p>Calculation of Dosage Using the Body Weight Method</p> <p>Calculate pediatric dosage using the child's weight in kilograms and the manufacturer's recommended daily dose based on the weight in kilograms.</p> <p>Supports the Quantitative Reasoning Competency: <b>Ratio and Proportion</b></p> <p>Prepared for SSAC by Jian Zou, SSAC Faculty Community Challenge of The Hastings Center for Improving the Quality of Undergraduate Education. All rights reserved. 2006</p>	<p><i>Computing Dosage for Infants and Children -- Calculation of Dosage by the Body Weight Method</i></p>	<p>Zou, Jian</p>	<p><u>Ratio and proportion</u>, unit conversion</p>	<p>Ratio &amp; Proportion; Unit Conversions; Text to Math Translation; Manipulating Equations; Forward Modeling; Creating &amp; Manipulating Tabular Data</p>