

**First Nine Weeks**

<b>Grade: 10-12</b>	<b>Subject: Algebra, Functions, &amp; Data Analysis</b>	<b>Year: 2016-2017</b>
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<b># of Days</b>	<b>SOL</b>	<b>Student Essential Knowledge and Skills</b>	<b>Resources</b>	<b>Vocabulary</b>	<b>Bloom's</b>
1	None	Teacher/AFDA Introductions	Textbook, TI-83 Calculator, Syllabus	None	
3	No AFDA SOL	Problem Solving, Translating verbal statements into Algebraic equations, Finding values of various sequences, Using deductive reasoning and formulas	Textbook Lessons 1.1-1.3, Calculator, Khan Academy Videos	Arithmetic Sequence, Geometric Sequence, Fibonacci Sequence, Inductive Reasoning, Deductive Reasoning, Formula	
2	No AFDA SOL	Proportional Reasoning - Finding proportions using cross multiplication - Finding proportions using percents and ratios - Analyzing Units and changing units in problems	Textbook Lessons 1.4 & 1.5, Calculator, Teaching Channel Videos	Ratio, Cross Multiplication, Proportion, Percent, Equivalent, Proportional Reasoning, Rate, Unit Analysis, Direct Method, Proportion Method	
3	AFDA 4	Modeling and Solving Practical Problems - Developing models in the form of an equation - Solve an equation using an algebraic approach	Textbook Lessons 1.8 & 1.10 & 1.12, Calculator	Mathematical Model, Inverse Operations	

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1	AFDA 4	Developing models to solve problems, Using the distributive property, Solve literal equations for the given variable	Textbook Lesson 1.11	None New	
5	AFDA 1	<p>Functions and Graphing</p> <ul style="list-style-type: none"> <li>-Identify input and output of given situations</li> <li>-Identify functional relationships</li> <li>-Identify independent/dependent variables</li> <li>-Write the equation of a function</li> <li>-Solve an equation numerically and graphically</li> <li>-Describe in words what a graph is showing</li> <li>-Sketch a graph that best represents a situation</li> <li>-Identify increasing and decreasing parts of a graph</li> <li>-Draw a new graph after a vertical or horizontal shift</li> </ul>	Textbook Lessons 1.6, 1.7, 1.9, 1.13, 1.14	Variable, Function, Input, Output, Independent, Dependent, Ordered Pairs, Numerically defined function, Quadrants, Increasing, Decreasing, Constant, Rational, Irrational, Domain, Practical Domain, Range, Increment, Function Notation, Evaluated, Equation, Numerical, Graphical, Solution, Continuous, Discontinuity, Maximum, Minimum, Vertical Line Test, Vertical Shift, Horizontal Shift, Translation	

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4	Multiple	Review/Remediate and Test/Quiz	Assigned Work From Chapter & Practice Test Questions		
2	AFDA 1	Rate of Change -Determine the average rate of change -Identify linear functions -Find slope -Identify positive and negative slopes	Textbook Lessons 2.1 & 2.2	Scatterplot, Average rate of change, Delta Notation, Linear Function, Slope, Increasing Function, Decreasing Function, Horizontal Line, Vertical Line	
2	AFDA 2	Transformations & Linear Graphs -Find X and Y intercepts -Develop the slope intercept form of a line -Determine the zeros of a linear function -Identify the effect of changing a lines equation on the graph -Identify the change in a graph as a translation, reflection, or vertical stretch or shrink	Textbook Lessons 2.3 & 2.4, Interactive Online Calculator to see graph transformations	Vertical Intercept, Y-Intercept, Slope-Intercept Form, Horizontal Intercept, X-Intercept, Positive Slope, Negative Slope, Vertical Shift, Horizontal Shift, Reflection, Stretch Factor, Vertical Shrink, Transformations	

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3	AFDA 1	Linear Function Models -Slope Intercept Form -Relative Error -Point Slope Form -Finding slope using the slope formula	Textbook Lessons 2.5-2.7	Error, Observed Value, Expected Value, Relative Error, Point slope form, Scatterplot, Outlier, Residuals, Linear Correlation Coefficient, Lurking Variable	
3	AFDA 3	Lines of Best Fit -Linear Regression Equation -Linear Correlation Coefficient -Using calculator to find regression line	Textbook Lessons 2.8-2.10	Interpolation, Extrapolation, RegressionLine	
2	Multiple	Review/Remediate & Test	Assigned Work From Chapter & Practice Test Questions		
2	Multiple	Project	Options between: Slope Webquest, Designing a city plan (1D) with roads being lines with specific slopes, Egg Drop Soup activity or another option		

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5	AFDA 6	Calculating Probabilities including Law of Large Numbers, independent events, addition and multiplication rules and dependent events	Textbook Lessons 6.1-6.4 & Videos/Activities from Teaching Channel	Relative frequency, probability, event, random, sample space, probability distribution, theoretical, experimental, simulate, law of large numbers, multiplication principle of counting, tree diagram, dependent event, multiplication principle of probability, mutually exclusive, conditional probability ,	
4	Multiple	Review and Midterm	Assigned work from previous the 1 <sup>st</sup> 9 weeks and practice test questions		

## Second 9 Weeks

# of Days	SOL	Student Essential Knowledge and Skills	Resources	Vocabulary	Bloom's
4	AFDA 6	Calculating Probabilities including conditional probabilities, counting techniques, combinations, and permutations	Textbook Lessons 6.5-6.8 & Videos/Activities from Khan Academy	Permutation, Combination, Factorial, Binomial Probability Distribution, Independent Event	
2	Multiple	Review/Remediate and Test	Assigned Work From Chapter & Practice Test Questions		
2	Multiple	Project (Design your own probability game & project write-up) [If extra time is available, the class could take turns playing one another's games]			
3	AFDA 4	Analyzing multiple representations of data. Reading and interpreting tables, graphs as well as understanding how scaling axes can misrepresent data.	Textbook Lessons 7.1-7.3	Scale Factor, Frequency, Dotplot, Frequency Distributions, Classes, Class Width, Stem, Leaf	
1	AFDA 7	Normal Distribution including the area under the standard normal curve, probability and percentiles,	Textbook Lesson 7.4	Central Tendency, Mean, Median, Midrange, Mode, Resistant Measure	

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4	AFDA 8	Experiments and Surveys – concepts include sampling techniques, controlling sources of bias and error, data collection, and data analysis & reporting. Students will create their own survey and conduct it.	Textbook Lessons 7.5-7.8	Census, Sample, Sampling, Bias, Simple Random Sample, Sample Survey, Sampling Frame, Nonrespondents, Self-selection, Sampling plan, Experimental Unit, Control Group, Treatment, Double Blind, Placebo, Placebo Effect, Replication	
4	AFDA 7	Analyzing the normal distribution including characteristics of normally distributed data, normalizing data, and using Z-scores	Textbook Lessons 7.9-7.12	Standard Deviation, Boxplot, 5-number summary, Normal Distribution, Normal Curve, Z-score, Cumulative Probability Density Function, Percentile	
1	AFDA 7	Box and Whisker Plots Students will be able to construct and interpret box and whisker plots	Textbook pages 860-864 and supplements from TI & Algebra 1 & Khan Academy Video		
2	Multiple	Review/Remediate and Test	Assigned Work From Chapter & Practice Test Questions		
6	Multiple	Solving real world personal finance problems including simple and compound interest, ordinary annuities & an annuity due, amortization rates, interest and finance charges and mortgages	Textbook Lesson 8.1-8.6 & supplements from TI	Income, Expenses, Simple Interest, Compound Interest, Annual Percentage Yield, Present Value, Future Value, Annuity, Ordinary Annuity, Amortization, Leasing, Finance Charge, APR, Truth-In-Lending Act, Installment Price, Mortgage	

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1	Multiple	Financial Models Group Project	Textbook Page 957		
2	Multiple	Review/Remediate and Test	Assigned Work From Chapter & Practice Test Questions		
2	Multiple	Project – Choosing a career and creating a budget and financial plan for the future – Individual project & write up	Computer Lab, Excel, Word and Internet		
5	Multiple	Review/Remediate and Final Exam	Assigned work from 2 <sup>nd</sup> 9 weeks and practice test questions		