Personal Finance with Algebra

Unit 1   Discretionary Expenses

Often most teenager's expenses are discretionary expenses. Students often do not have the responsibility of essential expenses, especially at a younger age. The problems, activities and projects inherent in studying discretionary and essential expenses are a natural forum for all eight CCSS Mathematical Practices, but this unit will highlight MP1, MP2, MP3, MP4 MP5, MP6 and MP8

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data. Money Management includes setting goals and developing a plan for how to spend, save, and share financial resources.	How do your discretionary and essential expenses vary??	Measure of central tendency Frequency distributions Decision Making Purchasing	Differentiate between essential and Discretionary expenses. Determine the mean, median, and mode of a data set. Use sigma notation to represent the mean of a data set. Create and interpret a frequency distribution table. Determine the mean, median and mode of a data set presented as a frequency distribution table.	**1-1 Discretionary and Essential Expenses** Financial Algebra (Cengage) 2nd Ed. Section 1-1 Pgs. 4 - 13	Gross income Disposable Income Essential expenses Discretionary expenses Statistics Data Mean Median Mode Subscript Index Outlier Skewed data set Bimodal Frequency distribution	CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations. (A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1 CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on

							measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) BCIT Standards 15.6.12.B, 15.6. 12.A, 15.6.12.H
	Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data. Money Management includes setting goals and developing a plan for how to spend, save, and share financial resources.	How do your discretionary and essential expenses vary??	Cumulative and Relative Frequency Percentiles Spreadsheets Decision Making Purchasing	Determine and interpret cumulative frequency. Determine and interpret relative frequency. Determine and interpret relative cumulative frequency. Model a distribution using a spreadsheet. Determine and interpret percentiles.	**1-2 Travel Expenses** Financial Algebra (Cengage) 2nd Ed. Section 1-2 Pgs. 14 - 24	Cumulative Frequency Relative Frequency Spreadsheet Cell Relative cumulative frequency Percentile Percentile rank	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations. (A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1) CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) BCIT Standards 15.6.12.B, 15.6. 12.A, 15.6.12.H
	Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data.	How do your discretionary and essential expenses vary??	Scatterplots Correlations Linear Regressions Decision Making Purchasing	Differentiate between univariate and bivariate data. Interpret trends based in bivariate data. Construct a scatter plot. Fit a linear regression line to a scatterplot.	**1-5 Personal Expenses** Financial Algebra (Cengage) 2nd Ed. Section 1-5 Pgs. 43 - 54	Univariate data Bivariate data Scatterplot Trend Correlation Causal relationship Explanatory variable	CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable. (A1.2.3.2.1, A1.2.3.2.2., A1.2.3.2.3)

| | | | | Find the equation of a linear regression line.

Compute and interpret the correlation coefficient.

Extrapolate and interpolate to make predictions based on regression lines. | | Response variable

Lurking variable

Linear regression analysis

Linear regression equation

Independent variable

Dependent variable

Domain

Interpolation

Extrapolation

Correlation coefficient. | CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data.
(A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)

BCIT Standards 15.6.12.B, 15.6. 12.A, 15.6.12.H, 15.6.12.F |

Money Management includes setting goals and developing a plan for how to spend, save, and share financial resources							

Unit 1 Discretionary Expenses Review

Unit 1 Discretionary Expenses Assessment

Unit 2   Banking Services

In this unit, students examine the simple interest formula, and basic banking and checking services. They use the simple interest formula and calendars to get an intuitive feel for the concept of compound interest. The problems, activities and projects inherent in studying banking are a natural forum for all eight CCSS Mathematical Practice standards, but this unit highlights MP1, MP4, MP5, MP6, and MP8.

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	Numbers, measures, expressions, equations, and	What long-term and short-term services are available	Basic Operations Literal Equation	Make checking account transactions.	**2-1 Checking Accounts**	Direct Deposit ATM	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or

inequalities can represent mathematical situations and structures in many equivalent forms.	from financial institutions and how can they benefit you?	Extensions	Determine the balance in a check register.	Financial Algebra (Cengage) 2nd Ed. Section 2-1 Pgs. 66 - 72	Personal Identification Number Hold Endorse Canceled Insufficient funds Overdraft protection Maintenance fee Interest Single account Joint account	mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) BCIT Standards 15.1.12.F,
Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms	What long-term and short-term services are available from financial institutions and how can they benefit you?	Basic Operations Literal Equation Inequalities	Reconcile a bank statement and a check register. Model the reconciliation process using variables. Reconcile a bank statement and check register using a spreadsheet.	**2-2 Reconcile a Bank Statement** Financial Algebra (Cengage) 2nd Ed. Section 2-2 Pgs. 73 - 80	Statement period Starting balance Ending balance Outstanding balance Outstanding checks Balancing Reconciling	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) BCIT Standards 15.1.12.F
Relations and functions are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations. There are some mathematical relationships that are always true and these	What long-term and short-term services are available from financial institutions and how can they benefit you?	Simple Interest Formula Ordering rational numbers literal equations, Spreadsheets Arithmetic Sequences	Write the general form for an arithmetic sequence. Find the common difference in an arithmetic sequence. Order percentages. Make savings account calculations. Use the simple interest formula to find the interest given the	**2-3 Savings Account** Financial Algebra (Cengage) 2nd Ed. Section 2-3 Pgs. 81 - 88	Annual Percentage Rate Simple Interest Simple Interest Formula Statement savings Minimum balance Money market account Certificate of Deposit (CD) Maturity	CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities

	relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities			principal, rate, and time. Use the simple interest formula to find the principal given the interest, rate, and time. Use the simple interest formula to find the time given the principal, rate, and interest. Use the simple interest formula to find the rate given the principal, interest, and time.		Arithmetic Sequence Common difference Finite Infinite	and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) BCIT Standards 15.1.12.F, 15.6.8.I, 15.6.8.J
	Relations and functions are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations.	What long-term and short-term services are available from financial institutions and how can they benefit you?	Compound Interest calendar Iteration	Apply the compound interest formula. Explore annual, semiannual, quarterly, monthly, and daily iteration using the simple interest formula.	2-4 Explore Compound Interest Financial Algebra (Cengage) 2nd Ed. Section 2-4 Pgs. 89 - 94	Compound interest Annual compounding Semiannual compounding Quarterly compounding Daily compounding Crediting	CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) BCIT Standards 15.1.12.F, 15.6.8.I, 15.6.8.J

Unit 2 Banking Services Review

Unit 2 Banking Services Assessment

Unit 3 Consumer Credit

Using credit is a tremendous responsibility. Students need to learn all of the requirements and regulations involving loans and credit cards. Unit 3 examines loans, credit legislation, debtors and creditor responsibilities, and reading a credit card statement. The

problems, activities and projects inherent in studying credit are a natural forum for all eight CCSS Mathematical Practice standards, but this unit highlights MP1, MP2, MP3, MP4, MP5, MP6, and MP8.							
Estimated Unit Time Frames	**Big Ideas**	**Essential Questions**	**Concepts (Know)**	**Competencies (Do)**	**Lessons/ Suggested Resources**	**Vocabulary**	**Standards/ Eligible Content**
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Borrowing money has cost and benefits.	How can having credit (good or bad) impact your personal life?	down payments monthly payments credit scores Credit worthiness Spreadsheets Credit	Define the basic vocabulary necessary to use credit responsibly. Identify different types of lending institutions. Compute how long it takes to save for items when credit is not used. Compute finance charges for installment purchases. Explain layaway plan fees. Explain deferred payment plans. Explain credit scores. Compute how credit scores can affect the cost of credit.	**3-1 Introduction to Credit** Financial Algebra (Cengage) 2nd Ed. Section 3 – 1 Pgs. 148 - 156	Credit Debtor Creditor Asset Earning Power Credit rating Credit reporting agency FICO score Installment plan	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) BCIT Standards 15.1.12.F, 15.2.12.G, 15.2.12.H, 15.2.12.J, 15.6.12.H
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of	How can having credit (good or bad) impact your personal life?	monthly payment formula substitution monthly payment tables ordering percents decimals, and fractions converting fractions to	Compute monthly payments using a monthly payment table. Compute monthly payments using the monthly payment formula. Compute finance charges on loans.	**3-2 Loans** Financial Algebra (Cengage) 2nd Ed. Section 3 – 2 Pgs. 157 - 163	Promissory Notes Principal Annual Percentage Rate Cosigner Life insurance Prepayment privilege Prepayment penalty	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1,

	expressions and solving equations and inequalities. Borrowing money has cost and benefits.		equivalent decimals Credit	Model finance charges algebraically.		Wage assignment Wage garnishment Balloon payment	A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) BCIT Standards 15.1.12.F, 15.2.12.G, 15.2.12.H, 15.2.12.J, 15.6.12.H
	There are some mathematical relationships that are always true and these relationships are used as the rules of	How can having credit (good or bad) impact your personal life?	interest capitalization simplified daily interest monthly payment formula	Explain options available for student loans. Calculate interest on a student loan.	**3-3 Student Loans** Financial Algebra (Cengage) 2nd Ed. Section 3 – 3 Pgs. 164 - 172	Career school Free Application for Federal Student AID (FAFSA) Student Aid Report	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)

	arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Borrowing money has cost and benefits.		Credit	Apply the simplified daily interest formula.		Expected Family Contribution (EFC) Federal Loan Private Loan Federal Direct Unsubsidized Loan (Stafford) Federal Direct Subsidized Loan (Stafford) Accrues Federal PLUS Loan Federal Perkins Loan	CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) BCIT Standards 15.1.12.F, 15.2.12.G, 15.2.12.H, 15.2.12.J, 15.6.12.H
	There are some mathematical	How can having credit	literal equations	Define the vocabulary of credit card usage.	**3-5 Credit Cards**	Credit cards	CC.2.1.HS.F.2 Apply properties of rational

relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Borrowing money has cost and benefits.	(good or bad) impact your personal life?	Percent Finance charges Credit responsibilities Decision making	Compute liabilities under the Truth in Lending Act. Compute monthly interest rates based on APR. Compute the average daily balance on a credit card. Model average daily balances algebraically. Explain the various credit legislations.	Financial Algebra (Cengage) 2nd Ed. Section 3 – 5 Pgs. 179 - 186	Impulse buying Revolving charge account Charge card Truth-in-Lending Act Fair Debt Collection Practices Debit Card Electronic Funds Transfer Act Average Daily Balance	and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)

							BCIT Standards 15.6.12.B, 15.6.12.F, 15.2.12.H, 15.2.12.J, 15.6.12.H, 15.6.12.L, 15.6.12.M
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.

Borrowing money has cost and benefits. | How can having credit (good or bad) impact your personal life? | finance charges

interpreting statements | Verify entries on a credit card statement.

Explain the Schumer Box.

Explain how interest accumulates when only the minimum payment is paid monthly. | **3-6 Credit Card Statement**

 Financial Algebra (Cengage) 2nd Ed. Section 3 – 6 Pgs. 187 - 192 | Billing Cycle

Credit card statement

Account number

Credit line

Available credit

Billing date

Payment due date

Transactions

Debit/credit

Previous balance

Payments/credits

New purchases

Late charges

Finance charges

New balance

Minimum payment | CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)

CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1)

CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)

CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3)

CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)

BCIT Standards 15.6.12.B, 15.6.12.F, |

						15.2.12.H, 15.2.12.J, 15.6.12.H, 15.6.12.L, 15.6.12.M
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Borrowing money has cost and benefits.	How can having credit (good or bad) impact your personal life?	computing average daily balance	Create an average daily balance calendar based on interpreting a credit card statement. Explain how purchases at different points in the billing cycle affect average daily balance. Compute average daily balance. Determine errors in credit card statements. Calculate and/or verify finance charges on a credit card statement.	**3-7 Average Daily Balance** Financial Algebra (Cengage) 2nd Ed. Section 3 – 7 Pgs. 193 - 200	Credit calendar Billing date Minimum payment warning box Negative amortization (NegAM)	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.

							(A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) BCIT Standards 15.6.12.B, 15.6.12.F, 15.2.12.H, 15.2.12.J, 15.6.12.H, 15.6.12.L, 15.6.12.M

Unit 3 Consumer Credit Review

Unit 3 Consumer Credit Assessment

Unit 4   Employment

High school students are on the brink of joining the labor force, even if on a part-time, after school, or summer level. They need to fully understand the nuances of finding a job, salaries, labor laws, paystub deductions, and benefits. The problems, activities and projects inherent in studying employment are a natural forum for all eight CCSS Mathematical Practice standards, but this unit highlights MP1, MP4, MP5, MP6, MP7, and MP8.

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of	What do you need to know in order to make sound employment decisions?	piecewise functions percent decrease	Compute periodic salary based on annual contract salary. Compute employment agency fees. Interpret abbreviations in classified ads. Express classified ad prices as piecewise functions.	**5-1 Look for Employment** Financial Algebra (Cengage) 2nd Ed. Section 5 – 1 Pgs. 292 - 297	Employment agency Recruitment agency Employer paid Fee Paid Applicant paid Resume'	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1 CC.2.2.HS.D.9 Use reasoning to solve

| | | | | | Form W-4: Employee's Withholding Allowance Certification

Benefits

Discount | equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) |
|---|---|---|---|---|---|---|
| expressions and solving equations and inequalities.

Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data. | | | | | | |
| There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.

Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data. | What do you need to know in order to make sound employment decisions? | Literal equations

Rational functions

Spreadsheets | Compute weekly, semimonthly, and biweekly earnings given annual salary.

Compute hourly pay.

Compute overtime pay at different overtime rates.

Model payment procedures algebraically.

Compute hourly rates from total paycheck that include overtime. | **5-2 Pay Periods and Hourly Rates**

Financial Algebra (Cengage) 2nd Ed. Section 5 – 2 Pgs. 298 - 305 | Direct Deposit

Hourly rate

Regular hours

Overtime hours

Overtime hourly rate

Time-and-a half overtime

Double-time pay

Gross pay

Minimum wage | CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)

CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1

CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3)

BCIT Standards 15.1.5.M, 15.6.8.D. 15.1.12.M, 15.1.12.Y, 15.1.12.E

FCS Standards 11.1.12.E |

There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data.	What do you need to know in order to make sound employment decisions?	Commission Piecewise functions	Compute pay based on percent commission. Compute piecework pay. Model payment procedures algebraically. Discuss the advantages and disadvantages of incentive-based pay.	**5-3 Commissions, Royalties, and Piecework Pay** Financial Algebra (Cengage) 2nd Ed. Section 5 – 3 Pgs. 306 - 313	Commission Royalty Pieceworkers Piecework rate	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1 CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) BCIT Standards 15.1.5.M, 15.6.8.D. 15.1.12.M, 15.1.12.Y, 15.1.12.E
There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	What do you need to know in order to make sound employment decisions?	Literal equations Measures of central tendency	Explain the value of pensions and health care insurance, stock ownership plans, paid vacations, and child care. Model vacation time using linear functions. Compute the costs of purchasing employee benefits. Explain unemployment insurance.	**5-4 Employee Benefits** Financial Algebra (Cengage) 2nd Ed. Section 5 – 4 Pgs. 314 - 319	Insurance Paid vacation time Paid time off (PTO) Retirement plans Stock ownership plans Childcare leave Family health care Pension Unemployment Insurance	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1 CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3,

	Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data. Degree and direction of linear association between two variables is measurable			Compute final average salaries for pensions. Compute pensions.		Base period Workers compensation	A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) BCIT Standards 15.6.12.N
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Bivariate data can be modeled with mathematical functions that approximate the data well and help us make	What do you need to know in order to make sound employment decisions?	Slope Graphs with cusps Piecewise functions Discontinuities	Compute paycheck deductions for Social Security. Express Social Security payments as piecewise functions. Compute paycheck deductions for Medicare. Compute historical trends in Social Security deductions. Graph Social Security deduction functions. Find coordinates of cusps in Social Security graphs. Compute excess Social Security taxes paid.	**5-5 Social Security and Medicare** Financial Algebra (Cengage) 2nd Ed. Section 5 – 5 Pgs. 320 - 324	Social Security Federal Insurance Contributions Act (FICA) FICA Taxes Social Security Taxes Maximum Taxable Income Social Security Number	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1 CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)

	predictions based on the data. Degree and direction of linear association between two variables is measurable.						BCIT Standards 15.6.12.N

Unit 5   Independent Living

Most students do not have a full grasp of the big picture when it comes to the financial demands of "moving out." There are so many expenses involved in purchasing and maintaining a home, or renting an apartment. Students will examine all of the expenses that comprise independent living. The problems, activities and projects inherent in studying independent living are a natural forum for all eight CCSS Mathematical Practice standards, but this unit highlights MP1, MP3, MP4, MP5, MP6, and MP7.

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of	How do you use mathematics to model moving, renting, and purchasing a place to live?	Systems of equations	Calculate the affordability of monthly rent. Use regression to determine the relationship between square footage and monthly rent. Determine lease signing costs.	**7-1 Find a Place to Live** Financial Algebra (Cengage) 2nd Ed. Section 7 – 1 Pgs. 392 - 400	Furnished Unfurnished Lease Expires Evict Single-family home Multiple family home	CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2) FCS Standards 11.1.12.C

	expressions and solving equations and inequalities.			Calculate and compare moving expenses.\n\nUse simultaneous equations to model moving costs.		Condominium\n\nSquare footage\n\nApplication Deposit\n\nSecurity deposit	
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.\n\nNumbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	How do you use mathematics to model moving, renting, and purchasing a place to live?	Area\n\nPerimeter\n\nVolume\n\nSubtraction of areas\n\nApothem\n\nMonte Carlo method	Compute the perimeter of a polygon.\n\nCompute the area of a regular polygon using its apothem.\nConvert scale drawing measurements to actual measurements.\n\nUse subtraction of areas to find the areas of irregular regions.\n\nUse probability and the Monte Carlo Method to compute the area of irregular regions.\n\nCompute volumes of rectangular solids.\n\nUse volume to compute BTU requirements for air-conditioning.	**7-2 Read a Floor Plan**\n\nFinancial Algebra (Cengage) 2nd Ed. Section 7 – 2 Pgs. 401 - 406	Area\n\nCongruent\n\nPerimeter\n\nApothem\nMonte Carlo method\n\nVolume\n\nBritish Thermal Units (BTU)	CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. (G.1.2.1.1, G.1.2.1.2, G.1.2.1.3, G.1.2.1.4, G.1.2.1.5, G.1.3.2.1, G.2.2.1.1, G.2.2.1.2, G.2.2.2.1, G.2.2.2.2, G.2.2.2.3, G.2.2.2.4, G.2.2.2.5)\n\nCC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically. (G.2.1.2.1, G.2.1.2.2, G.2.1.2.3)\n\nCC.2.3.HS.A.14 Apply geometric concepts to model and solve real world problems. (G.2.2.4.1, G.2.3.1.1, G.2.3.1.2, G.2.3.1.3)\n\nCC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1)\n\nFCS Standards 11.1.12.C
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are	How do you use mathematics to model moving, renting, and purchasing a place to live?	monthly payment formula substitution\n\nliteral equations	Define the vocabulary of closing on a home.\n\nCompute front end ratios\n\nCompute Back end ratios	**7-3 Mortgage Application Process**\n\nFinancial Algebra (Cengage) 2nd Ed. Section 7 – 3 Pgs. 409 - 418	Assesses value\n\nDown payment\n\nFixed-rate mortgage\n\nAdjustable rate mortgage\n\nForeclosure	CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1)\n\nCC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities

	useful for writing equivalent forms of expressions and solving equations and inequalities. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.			Compute balloon payments. Compute monthly payment using the monthly payment formula. Compute the total interest on a home purchase. Compute property taxes based on square footage and assessed value.		Private mortgage insurance Home owner's insurance Escrow Front-end ratio Back-end ratio Debt –to –income ratio Balloon mortgage Interest only mortgage	and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) FCS Standards 11.1.12.C
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in	How do you use mathematics to model moving, renting, and purchasing a place to live?	Interest Spreadsheets	Define the vocabulary of closing on a home. Estimate closing costs. Create an amortization table for a fixed mortgage. Investigate amortization tables for adjustable rate mortgages.	**7-4 Purchase a Home** Financial Algebra (Cengage) 2nd Ed. Section 7 – 4 Pgs. 419 - 429	Recurring Costs Nonrecurring costs Closing Closing costs Earnest money deposit Attorney fees Origination fees Title Title search Points Origination points Discount points Prepaid interest Arrears	CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) FCS Standards 11.1.12.C

	many equivalent forms.					Transfer tax Amortization table Initial rate Adjustment period Hybrid adjustment rate mortgage	
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	How do you use mathematics to model moving, renting, and purchasing a place to live?	Discount points Breakeven date Negative points	Calculate the discount points for a mortgage. Determine the breakeven time for discount points. Calculate negative points.	**7-5 Mortgage Points** Financial Algebra (Cengage) 2nd Ed. Section 7 – 5 Pgs. 430 - 436	Discount points Breakeven date Negative points	CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) FCS Standards 11.1.12.C
	There are some mathematical relationships	How do you use mathematics to	Spreadsheets Scatterplots	Explain the difference between cooperatives and condominiums.	**7-6 Rentals, Condominiums, and Cooperatives**	Condominium Board of Directors	CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.

that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	model moving, renting, and purchasing a place to live?	Regression	Compute the costs of purchasing a cooperative or condominium.	Financial Algebra (Cengage) 2nd Ed. Section 7 – 6 Pgs. 437 - 444	Maintenance fee Co-op apartment Cooperative Landominium Equity	(A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) FCS Standards 11.1.12.C
There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Numbers, measures,	How do you use mathematics to model moving, renting, and purchasing a place to live?	Pythagorean Theorem	Find missing sides of right triangles using the Pythagorean Theorem.	**7-7 Home Maintenance and Improvement** Financial Algebra (Cengage) 2nd Ed. Section 7 – 6 Pgs. 445 - 454	Legs Hypotenuse Pitch Rise Run Similar Proportion Means Extremes Angle of elevation	CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2 CC.2.3.HS.A.14 Apply geometric concepts to

| | | | | | | model and solve real world problems. (G.2.2.4.1, G.2.3.1.1, G.2.3.1.2, G.2.3.1.3)

CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures. (G.1.2.1.1, G.1.2.1.2, G.1.2.1.3, G.1.2.1.4, G.1.2.1.5, G.1.3.2.1, G.2.2.1.1, G.2.2.1.2, G.2.2.2.1, G.2.2.2.2, G.2.2.2.3, G.2.2.2.4, G.2.2.2.5 |

| expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms. | | | | | | |

Unit 5 Independent Living Review

Unit 5 Independent Living Assessment

Unit 6   Automobile Ownership

Various functions, their graphs, and data analysis can be instrumental in the responsible purchase and operation of an automobile. In this unit, students will examine the mathematics of automobile advertising, sales and purchases, insurance, depreciation, safe driving, and accident reconstruction. The problems, activities, and key assignments in this Automobile Ownership Unit offer students opportunities to learn, explore, and use the CCSS Mathematical Practices MP1, MP2, MP3, MP4, MP5, MP6.

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many	Are automobile purchases a good investment??	Percent

Piecewise functions

domains as inequalities

cusp | Determine the sales tax on an automobile purchase.

Determine the cost of a classified auto advertisement. Model a classified ad pricing schedule using a piecewise function. | **4-1 Classified Ads**

Financial Algebra (Cengage) 2nd Ed. Section 4 – 1 Pgs. 210 - 215 | Sales tax

Domain

Piecewise Function

Split Function

Cusp | CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1

CC.2.1.HS.C.3 Write functions or sequences |

	equivalent forms. Relations and functions are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations.			Find and interpret the cusp of a piecewise function.			that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4)
	Degree and direction of linear association between two variables is measurable	Are automobile purchases a good investment??	Measures of central tendency Range Quartiles Interquartile range Outliers	Determine the mean of a set of data. Determine the median of a set of data. Determine the mode of a set of data. Determine the range of a set of data. Determine the quartiles of a data set. Determine the interquartile range of a set of data. Identify any outliers in a set of data.	**4-2 Automobile Transactions** Financial Algebra (Cengage) 2nd Ed. Section 4 – 2 Pgs. 216 - 223	Data Measures of central tendency Quartiles Lower quartiles Upper quartiles Subscript Interquartile range Stem-and-leaf plot	CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable. (A1.2.3.2.1, A1.2.1.2.2., A1.2.3.2.3) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3, A1.2.3.3.1)
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent	Are automobile purchases a good investment??	Basic calculations Literal equations and inequalities	Calculate an insurance policy surcharge. Determine insurance deductibles. Determine an insurance payout from a claim.	**4-3 Automobile Insurance** Financial Algebra (Cengage) 2nd Ed. Section 4 – 3 Pgs. 224 - 231	Claim Liability Insurance Bodily injury liability Property damage liability Uninsured/underinsured motorist protection No-fault insurance	CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method. (A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities

	forms of expressions and solving equations and inequalities.				Comprehensive insurance Collision insurance Car-rental insurance	and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)
	Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data.	Are automobile purchases a good investment??	Two-way tables Conditional probability Independent events Venn Diagrams	Determine the probability of an event. Determine conditional probabilities. Model a situation using Venn Diagrams. Use a Venn Diagram to solve a conditional probability problem. Convert a raw score to a z-score.	**4-4 Probability- The Basis of insurance** Financial Algebra (Cengage) 2nd Ed. Section 4 – 4 Pgs. 232 - 240	Actuary Probability Event Two-way table Conditional probability Independent events Associated events Venn Diagrams	CC.2.4.HS.B.4 Apply rules of probability to compute probability compound events in a uniform probability model. (A1.2.3.3.1) CC.2.4.HS.B.5 Make inferences and justify conclusions based on sample surveys, experiments, and observational studies. (A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)
	Degree and direction of linear association between two variables is measurable	Are automobile purchases a good investment??	Straight line depreciation equation Slope Linear expense function System of linear depreciation and expense functions	Determine the intercepts of a depreciation equation. Determine the slope of a depreciation equation. model an automobile depreciation situation using a linear equation. Use a linear depreciation equation to determine the value of a car after a specified period of time. Use a linear depreciation equation to determine depreciation time. Write an automobile expense function.	**4-5 Linear Automobile Depreciation** Financial Algebra (Cengage) 2nd Ed. Section 4 – 5 Pgs. 241 - 248	Straight line depreciation Straight line depreciation equation Expense function Fixed expense Variable expense	CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations. (A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1) CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1 CC.2.2.HS.D.7 Create and graph equations or

			Create and graph the system of equations composed of the linear automobile expense function and the linear depreciation function. Interpret the domains and the intersection point for the expense/depreciation system of equations.			inequalities to describe numbers or relationships. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2) CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	Are automobile purchases a good investment??	Basic calculation Ratios	Use the distance formula. Determine average speed. Determine mpg. Use exchange rates to find the value of world currencies.	**4-7 Driving Data** Financial Algebra (Cengage) 2nd Ed. Section 4 – 7 Pgs. 258 - 267	Odometer Trip odometer Speedometer Fuel economy measurement Miles per gallon Kilometers per liter English Standard System Metric System Distance formula Currency exchange rate	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1 CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)
	There are some mathematical	Are automobile purchases a	Ratios	Determine reaction distance.	**4-8 Driving Safety Data**	Reaction time	CC.2.2.HS.C.3 Write functions or sequences

relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	good investment??	Simple quadratic braking distance formula Equivalent representations of a quadratic	Determine braking distance. Determine total stopping distance. Use the stopping distance formula for metric measures.	Financial Algebra (Cengage) 2nd Ed. Section 4 – 8 Pgs. 268 - 273	Reaction distance Breaking distance Total stopping distance	that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)
There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	Are automobile purchases a good investment??	Square root skid speed formula Solving for a variable under a square root sign Components of a circle The middle ordinate The radius quadratic equation Projectile motion	Use the skid speed square root formula to determine the minimum speed of a car when entering a skid. Use the square root skid speed formula for yaw marks. Determine the radius of a circle given the length of a chord and a middle ordinate drawn to that chord. Use the accident reconstruction formulas and data taken from the scene of an accident to determine driving speed at the time of an accident. Use projectile motion equations to model an accident situation	**4-9 Accident Investigation Data** Financial Algebra (Cengage) 2nd Ed. Section 4 – 9 Pgs. 274 - 282	Accident reconstructionist Skid mark Shadow skid mark Antilock braking system Yaw mark Skid speed formula Drag factor Breaking efficiency Skid distance	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)

Unit 6 Automobile Ownership Review
Unit 5 Automobile Ownership Assessment
Unit 7   The Stock Market
Students are often intrigued by the investment world. Many may end up working for a business and this unit allows them to learn about different types of business organizations. The unit will use algebra and graphs to explore how business raise capital through stock sales and how stock trades and dividends allow investors to make money. The problems and activities in this Stock Market unit offer students opportunities to learn, explore and use the CCSS Mathematical Practices MP1, MP2, MP3, MP4, MP5 and MP6.

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	How do you read, interpret, and chart stock ownership and transaction data?	Ratio and Proportion Investing	Define the basic vocabulary of business organizations. Express parts of a whole as ratios. Compute financial responsibility of business ownership based on ratio and proportion.	**8-1 Business Organizations** Financial Algebra (Cengage) 2nd Ed. Section 8-1 Pgs. 464 - 468	Profit Personally liable Partnership Corporation Shares of Stock Limited Liability Private Corporation Public Corporation	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3)

							CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) BCIT Standards 15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	How do you read, interpret, and chart stock ownership and transaction data?	Percent increase Signed numbers Spreadsheets Investing	Use stock data to follow the daily progress of a corporate stock. Use net change to compute closing prices. Use closing prices to compute net change. Compute the volume of shares traded from a stock table. Express net changes as percents of closing prices. Create spreadsheet formulas to model stock share progress	**8-2 Stock Market** Financial Algebra (Cengage) 2nd Ed. Section 8-2 Pgs. 469 - 476	Last Open Close High Low Volume Sales in 100's 52-week high 52-week low Net change After-hours trading	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) BCIT Standards

						15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.	How do you read, interpret, and chart stock ownership and transaction data?	Graphing

Investing | Interpret a stock bar chart.

Create a stock bar chart.

Interpret a stock candlestick chart.

Create a stock candlestick chart.

Compute net changes from bar charts and candlestick charts. | **8-3 Stock Market Data Charts**

Financial Algebra (Cengage) 2nd Ed. Section 8-3 Pgs. 477 - 482 | Stock Chart

Stock Bar Chart

Candlestick Chart | CC.2.1.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations. (A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1)

BCIT Standards 15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I |
| | Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data.

Degree and direction of linear association between two variables is measurable, | How do you read, interpret, and chart stock ownership and transaction data? | Mean

Regression Analysis

Investing | Explain how data is smoothed.

Calculate simple moving averages using the arithmetic average formula.

Calculate simple moving averages using the subtraction and addition method.

Graph simple moving averages using a spreadsheet. | **8-4 Trends in Stock Closing Prices**

Financial Algebra (Cengage) 2nd Ed. Section 8-4 Pgs. 483 - 493 | Smoothing techniques

Simple Moving Average

Lagging indicators

Fast moving averages

Slow moving averages | CC.2.1.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1)

CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable. (A1.2.3.2.1, A1.2.3.2.2., A1.2.3.2.3)

CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)

CC.2.1.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) |

						CC.2.1.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations. (A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1 CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) BCIT Standards 15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I
	Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data. Degree and direction of linear	How do you read, interpret, and chart stock ownership and transaction data?	Mean Literal equations Investing	Interpret stock market ticker displays. Determine the value of a trade form ticker output. Determine trade volumes from ticker displays.	**8-5 Stock Market Ticker** Financial Algebra (Cengage) 2nd Ed. Section 8-5 Pgs. 494 - 499	Stock Symbol Ticker Symbol Shares traded Trading price Directional arrow Total value of the trade Uptick Downtick	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1)

						Money flow	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)
	association between two variables is measurable,					Positive money flow	
						Negative money flow	CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2)
						Daily money flow	
						Net money flow	CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3)
							CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3)
							CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)
							BCIT Standards 15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I
	Bivariate data can be modeled with mathematical functions that approximate	How do you read, interpret, and chart stock ownership and transaction data?	Percent commission Literal equations Mean	Define the basic vocabulary of buying and selling shares of stock.	**8-6 Stock Transactions** Financial Algebra (Cengage) 2nd Ed. Section 8-6	Trade Portfolio Round Lot	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1,

				Compute gross capital gains and losses from stock trades. Express capital gain as a percent of purchase price.	Pgs. 500 - 504	Odd lot Gross capital gain Gross capital loss	A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.C.6 Interpret functions in terms of the situation they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) BCIT Standards
	the data well and help us make predictions based on the data. Degree and direction of linear association between two variables is measurable,		Investing				

						15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms. Degree and direction of linear association between two variables is measurable,		Signed numbers Literal equations Investing	Compute the fees involved in buying and selling stocks. Compare percent commissions to flat fees. Define the basic vocabulary of stock trading.	**8-7 Stock Transaction Fees** Financial Algebra (Cengage) 2nd Ed. Section 8-7 Pgs. 505 - 510	Stockbroker Broker fees Discount Broker Online brokerage house Full-service broker At the market Limit order Net proceeds	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data. (A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3) BCIT Standards 15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	How do you read, interpret, and chart stock ownership and transaction data?	Proportions Spreadsheets	Calculate the post-split outstanding shares and share price for a traditional split. Calculate the post-split outstanding shares and share price for a reverse split. Calculate the fractional value amount that a	**8-8 Stock Splits** Financial Algebra (Cengage) 2nd Ed. Section 8-8 Pgs. 511 - 516	Stock split Outstanding Shares Market capitalization Traditional stock split Reverse stock split Penny stock	CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on

	Degree and direction of linear association between two variables is measurable,			shareholder receives after a split.		Fractional part of a share	measurement when reporting quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.2.2.1, A1.1.2.2.2, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3, A1.1.3.2.1, A1.1.3.2.2) CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3 BCIT Standards 15.6.12.P, 15.6.12.P, 15.6.12.S,15.6.12.Q, 15.6.12.I

Unit 6 The Stock Market Review

Unit 6 The Stock Market Assessment

Unit 8 Modeling a Business (If Time Permits)

Students are introduced to basic business organization terminology in order to read, interpret, chart and algebraically model ownership, production, and sales data. Statistical analysis plays a very important role in the modeling of a business. Using linear, quadratic, and regression equations in that process assists students in getting a complete picture of supply, demand, expense, revenue, and profit as they model the production of a new product. The problems, activities, and assignments in this unit offer students opportunities to learn, explore, and use the CCSS Mathematical Practices MP1, MP2, MP3, MP4, MP5.

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	Degree and direction of linear association between two variables is measurable,\n\nBivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data	How do you use statistical analysis to model a business?	Sampling\n\nExperimental bias\n\nExperimental design\n\nBusiness plan using appropriate data to support the business concept.	Describe how to choose samples without bias.\n\nUse a random number table.\n\nCreate diagrams for experimental designs.	**9-1 Inventions**\n\nFinancial Algebra (Cengage) 2nd Ed. Section 9-1 Pgs. 532 - 542	Bias\n\nQuestion-wording bias\n\nRandom number table\n\nRandomization\n\nReplication\n\nControl Group\n\nExperimental Group\n\nComplete randomized design\n\nMatched pairs design\n\nObservational study\n\nHypothesis\n\nHypothesis testing	CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data.\n\n(A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)\n\nBCIT Standard 15.5.12.D.
	Degree and direction of linear association between two variables is measurable.\n\nBivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data	How do you use statistical analysis to model a business?	Sampling techniques\n\nUnbiased estimators\n\nFactorals	Compute combinations.\n\nCompute unbiased estimators.\n\nCritique sampling techniques.	**9-2 Market Research**\n\nFinancial Algebra (Cengage) 2nd Ed. Section 9-2 Pgs. 543 - 550	Focus group\n\nInferential Statistics\n\nConvenience sample\n\nReplacement\n\nCombination\n\nFactoral\n\nSimple random sample\n\nStratified random sample\n\nUndercoverage\n\nNonresponse\n\nUnbiased estimator	CC.2.4.HS.B.3 Analyze linear models to make interpretations based on data.\n(A1.2.2.2.1, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3)\n\nBCIT Standard 15.5.12.D.

There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities. Degree and direction of linear association between two variables is measurable.	How do you use statistical analysis to model a business?	Supply and demand system Equilibrium point Modeling demand using linear regression Slope	Describe the slopes of the supply and demand curves. Find points of equilibrium. Calculate a retail price after a markup. Interpret the graph of a supply and demand system of equations.	**9-3 Supply and Demand** Financial Algebra (Cengage) 2nd Ed. Section 9-3 Pgs. 551 - 556	Demand Supply Wholesale price Retail Price Equilibrium	CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.2.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1)
There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities	How do you use statistical analysis to model a business?	Literal equations Evaluating functions Expressing a function in terms of another variable Solving a system of linear equations.	Explain the difference between fixed and variable expenses. Represent expenses as a function of quantity produced. Determine average cost. Given a demand function expressed in terms of price, p, and expense function expressed in terms of demand Write the expense function in terms of price.	**9-4 Fixed and Variable Expenses** Financial Algebra (Cengage) 2nd Ed. Section 9-4 Pgs. 557 - 563	Variable expenses Fixed expenses Revenue Revenue function Breakeven point	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.2.HS.C.6 Interpret functions in terms of the situations they model. (A1.2.1.2.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.2.1

				Determine the breakeven point for a revenue and expense function both graphically and algebraically.			
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities	How do you use statistical analysis to model a business?	quadratic equation parabola axis of symmetry, Intercepts graphing a quadratic linear system of equations	Create a linear expense function. Graph a linear expense function. Create a revenue function as the product of the price and quantity demanded. Graph a revenue function. Interpret the graph of a revenue function. Interpret the zeros of a revenue function.	**9-5 Graphs of Expense and Revenue Functions** Financial Algebra (Cengage) 2nd Ed. Section 9-5 Pgs. 564 - 571	Nonlinear functions Second degree equation Quadratic equation Parabola Leading coefficient Minimum Maximum Vertex Axis of Symmetry Roots Zeros	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities	How do you use statistical analysis to model a business?	Quadratic formula Breakeven points Literal equation Spreadsheets	Determine breakeven points using the quadratic formula. Evaluate revenue and expense at breakeven points. Set up and use a spreadsheet to determine breakeven points.	**9-6 Breakeven Analysis** Financial Algebra (Cengage) 2nd Ed. Section 9-6 Pgs. 572 - 577	Zero net difference	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems.

							(A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1) BCIT Standards 5.1.12.X.
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities	How do you use statistical analysis to model a business?	Quadratic/linear system of equations Maximum point of a parabola, Interpreting profit Revenue, expense graphs	Determine the quadratic profit equation given a linear expense equation and a quadratic revenue equation. Determine the maximum point of a quadratic equation. Use the axis of symmetry to determine the maximum point of a quadratic profit equation. Interpret the maximum point of a quadratic profit equation.	**9-7 The Profit Equation** Financial Algebra (Cengage) 2nd Ed. Section 9-7 Pgs. 578 - 584	Profit Maximum profit Complex roots Complex number Imaginary unit	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)
	There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities	How do you use statistical analysis to model a business?	Transitive property of dependence Modeling profit Revenue, expense)	Determine the quadratic profit equation given a linear expense equation and a quadratic revenue equation. determine the maximum point of a quadratic equation. use the axis of symmetry to determine the maximum point of a quadratic profit equation. interpret the maximum point of a quadratic profit equation.	**9-8 Mathematically Modeling a Business** Financial Algebra (Cengage) 2nd Ed. Section 9-8 Pgs. 585 - 589	Dependence Transitive property of dependence	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities. (A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.3, A1.2.2.1.4) CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials. (A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3) CC.2.1.HS.F.2 Apply properties of rational and irrational to solve real world or mathematical problems. (A1.1.1.1.1, A1.1.1.1.2, A1.1.1.3.1, A1.1.1.2.1)

Unit 8 Modeling a Business Review							
Unit 8 Modeling a Business Assessment							