ADVANCED ALGEBRA WITH FINANCIAL APPLICATIONS
Course Number 1200500/IMF
COMPONENTS OF THE CURRICULUM MAP

Unit/Organizing Principle: the overarching organizational structure used to group content and concepts within the curriculum map

Pacing: the recommended time period within the year for instruction related to the essential questions to occur

Essential Questions: the overarching question(s) that will serve to guide instruction and push students to higher levels of thinking; essential questions should guide students to the heart of the content

Measurement Topics: a list of the major underlying concepts covered in the development of the essential questions

Learning Targets/Skills: the content knowledge, processes and enabling skills that will ensure successful mastery of the essential questions

Benchmarks: the Next Generation Sunshine State Standards

Academic Language: the content vocabulary and other key terms and phrases with which students should be familiar and that support mastery of the learning targets, skills and essential questions

Activities and Resources: a listing of available, high quality and appropriate materials, strategies, lessons, textbooks, videos and other media sources that are aligned with the learning targets, skills and essential questions; developed to save teachers time when planning for instruction

Assessment: a list of required formative assessments as well as suggested assessments that are available to use as formative or summative assessments
UNIT/ORGANIZING PRINCIPLE: Mathematics of Banking and Interest Rates

PACING: 1st quarter (18 days)

ESSENTIAL QUESTIONS: Can the student demonstrate the relationship between simple interest and linear growth and the relationship of compound interest and exponential growth?
Can the student identify and choose the best banking accounts for personal use?

<table>
<thead>
<tr>
<th>MEASUREMENT TOPICS</th>
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</thead>
<tbody>
<tr>
<td>Linear Functions and Systems of Linear Equations</td>
<td>• understand the purposes among: Checking, Savings, Debit, and Money Market accounts.</td>
<td>MA.912.F.4.2</td>
<td>Simple Interest Compound Interest Continuous Compounding Rate of interest Rate of Return Debit Cards Savings Account Checking Account Electronic Funds transfer Reconcile Bank Statement Certificate of Deposit Present Value Future Value Bank Statement Outstanding checks Money Market Account</td>
</tr>
<tr>
<td></td>
<td>• demonstrate the relationship between simple interest and linear growth.</td>
<td>MA.912.F.1.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• solve simple interest applications using systems of linear equation in 2 variables.</td>
<td>MA.912.A.3.15</td>
<td></td>
</tr>
<tr>
<td>Exponential Functions</td>
<td>• read and interpret compounding interest patterns to derive the compound interest formula.</td>
<td>MA.912.D.1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• solve real-life problems involving the compound interest formula and continuous compounding.</td>
<td>MA.912.F.1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• explain the difference between simple and compound interest</td>
<td>MA.912.F.1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• demonstrate the relationship between compound interest and exponential growth.</td>
<td>MA.912.F.1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• solve real-life applications exponential growth and decay involving population growth, inflation rates and appreciation/depreciation.</td>
<td>MA.912.A.8.7</td>
<td></td>
</tr>
</tbody>
</table>

MACC.K12.MP.1 Make sense of problems and persevere in solving them.
MACC.K12.MP.2 Reason abstractly and quantitatively.
MACC.K12.MP.3 Construct viable arguments and critique the reasoning of others.
MACC.K12.MP.4 Model with mathematics.
MACC.K12.MP.5 Use appropriate tools strategically.
MACC.K12.MP.6 Attend to precision.
MACC.K12.MP.7 Look for and make use of structure.
MACC.K12.MP.8 Look for and express regularity in repeated reasoning.
### ESSENTIAL QUESTIONS:
Can the student demonstrate the relationship between simple interest and linear growth and the relationship of compound interest and exponential growth?
Can the student identify and choose the best banking accounts for personal use?

<table>
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<th>Activities and Resources</th>
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| **Financial Algebra Text:**
3.1 Checking Accounts
3.2 Reconcile a bank Stmt
3.3 Savings Accounts
3.4 Explore Compound Interest
3.5 Compound interest Formula
3.6 Continuous Compounding  
**Foundations in Personal Finance:**
Ch. 1 Savings

**CPALMS:** [http://www.floridastandards.org/homepage/index.aspx](http://www.floridastandards.org/homepage/index.aspx)

**Links to Educational websites**
- Text website: [www.cengage.com/school/math/financialalgebra](http://www.cengage.com/school/math/financialalgebra)
- Hands On Banking: [www.handsonbanking.com](http://www.handsonbanking.com)
- Practical Money skills [www.practicalmoneyskills.com](http://www.practicalmoneyskills.com)
- NEFE High school Financial Planning [www.hsfpp.nefe.org](http://www.hsfpp.nefe.org)
- TI Activities Exchange [http://education.ti.com](http://education.ti.com)
- [www.daveramsey.com](http://www.daveramsey.com)

**Practical Money Skills**
- Lesson 6 Banking Services
- Lesson 12 Saving and Investing

**Hands On Banking**
- Topic 1
- Compound Interest

**TI Activities:**
- Accelerated Returns
- Show Me the Money
**UNIT/ORGANIZING PRINCIPLE:** Loans and Consumer Credit  
**PACING:** 1st quarter (17 days)

**ESSENTIAL QUESTIONS:**
- Can a student understand the responsibility of using credit?
- Can the student analyze the advantages and disadvantages of different types of loans?

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Linear Functions</td>
<td>• compute finance charges for installment purchases and the total amount due of the credit card bill.</td>
<td>MA.912.F.3.3</td>
<td>Credit Debtor</td>
</tr>
<tr>
<td></td>
<td>• understand how to read a credit card statement.</td>
<td></td>
<td>Creditor</td>
</tr>
<tr>
<td></td>
<td>• calculate deferred payments.</td>
<td>MA.912.F.3.3</td>
<td>Credit rating</td>
</tr>
<tr>
<td></td>
<td>• compare the advantages and disadvantages of using cash versus credit.</td>
<td>MA.912.F.3.4</td>
<td>FICO score</td>
</tr>
<tr>
<td></td>
<td>• compare the advantages and disadvantages of deferred payment plans.</td>
<td>MA.912.F.3.5</td>
<td>APR</td>
</tr>
<tr>
<td></td>
<td>• calculate the total amount due on a credit card bill by determining the average daily balance, and the finance charge using a credit calendar.</td>
<td>MA.912.F.3.3</td>
<td>Average daily balance</td>
</tr>
<tr>
<td></td>
<td>• examine and analyze the correlation of the data using technology.</td>
<td>MA.912.S.3.1</td>
<td>Credit line</td>
</tr>
<tr>
<td>Exponential Functions</td>
<td>• compute monthly payments on an installment loan with and without technology.</td>
<td>MA.912.F.3.6</td>
<td>Billing cycle</td>
</tr>
<tr>
<td>Natural Logarithms</td>
<td>• compute the length of a loan to stay within budget with and without technology.</td>
<td>MA.912.F.3.6</td>
<td>APR</td>
</tr>
<tr>
<td>Regression Analysis</td>
<td>• examine and analyze the correlation of the data using technology.</td>
<td>MA.912.S.3.1</td>
<td>APR</td>
</tr>
<tr>
<td>Linear Functions</td>
<td>• calculate the total amount due on a credit card bill by determining the average daily balance, and the finance charge using a credit calendar.</td>
<td>MA.912.F.3.3</td>
<td>Average daily balance</td>
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<td>• examine and analyze the correlation of the data using technology.</td>
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**MACC.K12.MP.1** Make sense of problems and persevere in solving them.  
**MACC.K12.MP.2** Reason abstractly and quantitatively.  
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## ESSENTIAL QUESTIONS:
- Can a student understand the responsibility of using credit?
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| **Financial Algebra Text:**  
  4.1 Introduction to Consumer Credit  
  4.2 Loans  
  4.3 Loan Calculations and Regression  
  4.4 Credit Cards  
  4.5 Credit Card Statement  
  4.6 Average Daily Balance | **Links to Educational websites**  
  - Text website: [www.cengage.com/school/math/financialalgebra](http://www.cengage.com/school/math/financialalgebra)  
  - Hands On Banking: [www.handsonbanking.com](http://www.handsonbanking.com)  
  - Practical Money skills [www.practicalmoneyskills.com](http://www.practicalmoneyskills.com)  
  - NEFE High school Financial Planning [www.hsfpp.nefe.org](http://www.hsfpp.nefe.org)  
  - TI Activities Exchange [http://education.ti.com](http://education.ti.com)  
  [www.daveramsey.com](http://www.daveramsey.com) |
| **Foundations in Personal Finance:**  
  Ch. 4 Danger of Debt  
  Ch. 5 Consumer Awareness  
  Ch. 6 Credit Bureaus and collection Practices |  |
| **CPALMS:** [http://www.floridastandards.org/homepage/index.aspx](http://www.floridastandards.org/homepage/index.aspx) |  |
| **Practical Money Skills**  
  - Lesson 7 Credit  
  - Lesson 9 Cars and Loans  
  - Lesson 11 Consumer Awareness |  |
| **Hands On Banking:**  
  - Topic 5 |  |
| **TI Activities:**  
  - Loans and Mortgages  
  - Amortization Tables  
  - Very Interesting |  |
| **NEFE:**  
  Unit 4 Good Debt, Bad Debt |  |
**UNIT/ORGANIZING PRINCIPLE**  
Buying and selling a car  

**PACING:** 2\textsuperscript{nd} quarter (21 days)

**ESSENTIAL QUESTIONS:** Can the student understand the financial responsibility of owning and operating a car?  
Can the students compare insurance companies and their rates to find the best deal?

<table>
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</table>
| Measure of Central Tendency | • solve real-life car buying and selling problems by computing the mean, median, mode, range, quartiles, and inter-quartile range for related data.  
• create a frequency distribution from a set of data.  
• create box-and-whisker plots and stem-and-leaf plots to display car data. | MA.912.S.3.3 | Sales tax  
Mean  
Median  
Mode  
Outlier  
Skew  
Range  
Quartiles  
Interquartile range  
Frequency Distribution  
Stem-and-Leaf plot  
Box-and-whisker plot  
Box plot  
Liability Insurance  
-Bodily injury (BI)  
-Property damage (PD)  
-PIP  
-UMP  
No fault insurance  
Collision insurance  
Deductible  
Slope  
Linear Depreciation  
Exponential Depreciation |
| Linear Functions | • compare different types of auto insurance coverage and compute insurance costs based on coverage.  
• compute payments on insurance claims. | MA.912.F.4.6 |  |
| Exponential Functions | • write, interpret and graph an exponential depreciation equation related to deprecating car values using technology.  
• manipulate the exponential depreciation equation in order to determine time, original price, and depreciated value of a car. | MA.912.A.8.7 |  |
| Linear Functions | • compare gas prices in other countries to the USA using currency exchange rate. | MA.912.F.4.13 |  |
| Unit Analysis | • solve problems about distance, fuel economy and gas usage using appropriate units. | MA.912.F.3.5 |  |

**MACC.K12.MP.1**  
Make sense of problems and persevere in solving them.  

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Look for and express regularity in repeated reasoning.
| ESSENTIAL QUESTIONS: | Can the student understand the financial responsibility of owning and operating a car?  
|                     | Can the students compare insurance companies and their rates to find the best deal? |
| Activities and Resources | Assessment |

*Ti Activity Exchange & APPS:*

| Internet Resources |  |
**UNIT/ORGANIZING PRINCIPLE:** Employment Basics  
**PACING:** 2nd quarter (14 days)

**ESSENTIAL QUESTIONS:** 
Can the student compare two job offers, their salaries and benefits packages to determine the best offer for them?  
Can a student read and understand the payroll deductions listed on their paystub including Social security tax and Medicare tax?

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</thead>
</table>
| Linear Piecewise Functions | - determine the following using piecewise functions:  
  costs of classified ads  
  compute paycheck deductions for Social Security and Medicare.  
- write piecewise functions to model real-life situations:  
  **Prerequisite skills:** compute weekly, semimonthly, and biweekly earnings given annual salary, hourly pay, overtime pay, commission rates and piecework pay rates. | Prior Knowledge (MA.912.A.2.9) | W-2  
W-4  
Benefits  
Biweekly  
Semimonthly  
Direct deposit  
Gross Pay  
Net Pay  
Piecework rate  
Commission  
Royalty  
Employee Benefits  
Pension  
Workers compensation  
Social Security tax  
FICA tax  
Medicare tax  
Maximum taxable income |
| Linear Functions | - calculate the value of employee benefits packages using linear equations. | Prior Knowledge (MA.912.A.3.11) | |

Make sense of problems and persevere in solving them.  
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MACC.K12.MP.1  
MACC.K12.MP.2  
MACC.K12.MP.3  
MACC.K12.MP.4  
MACC.K12.MP.5  
MACC.K12.MP.6  
MACC.K12.MP.7  
MACC.K12.MP.8
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<td><strong>Assessment</strong></td>
</tr>
<tr>
<td><strong>TI Activity Exchange &amp; APPS:</strong></td>
<td></td>
</tr>
<tr>
<td>Internet Resources</td>
<td></td>
</tr>
</tbody>
</table>
**UNIT/ORGANIZING PRINCIPLE:** The Stock Market  
**PACING:** 3rd quarter (14 days)

**ESSENTIAL QUESTIONS:** Can the student understand and invest in the stock market?  
Can the student differentiate between savings and investing?

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</thead>
<tbody>
<tr>
<td><strong>Interpret Data</strong></td>
<td>• determine the total value of a trade from ticker information.</td>
<td>MA.912.F.4.12</td>
<td>Saving, Investing, Time value of money, Rule of 72, Annuity, Dividend income, Penny stock, Shares, Ticker, Stock Split</td>
</tr>
<tr>
<td></td>
<td>• compare and Contrast income stock, growth stock, common stock, preferred stock, and corporate bonds.</td>
<td>MA.912.F.4.12</td>
<td></td>
</tr>
<tr>
<td><strong>Percent Increase/Decrease</strong></td>
<td>• solve Percent Increase/Decrease in stock values with and without technology.</td>
<td>MA.912.F.4.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• compute gains/losses from stock trades.</td>
<td>MA.912.F.4.12</td>
<td></td>
</tr>
<tr>
<td><strong>Linear Functions</strong></td>
<td>• compute the fees involved in buying and selling stocks.</td>
<td>MA.912.F.4.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• calculate the post-split outstanding shares and share price for a traditional and reverse split.</td>
<td>MA.912.F.4.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• compute dividend income, yield for a given stock and interest earned on corporate bonds.</td>
<td>MA.912.F.4.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• purchase stock with a set amount of money and follow the process through gains, losses and selling.</td>
<td>MA.912.F.4.11</td>
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<td></td>
</tr>
</tbody>
</table>

**TI Activity Exchange & APPS:**

**Internet Resources**

**Assessment**
## UNIT/ORGANIZING PRINCIPLE: Income Tax

### PACING: 3rd quarter (15 days)

### ESSENTIAL QUESTIONS: Can the student interpret tax tables to calculate and complete yearly federal income tax 1040EZ or 1040A form given various circumstances?

<table>
<thead>
<tr>
<th>MEASUREMENT TOPICS</th>
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</thead>
<tbody>
<tr>
<td>Piecewise Functions</td>
<td>• apply inequalities to express tax schedules algebraically.</td>
<td>MA.912.A.3.5</td>
<td>Property tax</td>
</tr>
<tr>
<td></td>
<td>• compute federal income taxes using a tax table and tax schedules.</td>
<td>MA.912.F.4.5</td>
<td>Income tax</td>
</tr>
<tr>
<td></td>
<td>• construct income tax graphs with/without technology using compound equations and piecewise functions.</td>
<td>Prior Knowledge (MA.912.A.2.9)</td>
<td>IRS</td>
</tr>
<tr>
<td>Interpret data</td>
<td>• interpret and apply the information on a pay stub, W-2, and 1099 form to solve real-life problems.</td>
<td>MA.912.F.4.5</td>
<td>Married filing jointly</td>
</tr>
<tr>
<td></td>
<td>• understand how to complete a 1040 EZ and a 1040A.</td>
<td>MA.912.F.4.5</td>
<td>Qualifying widow(er)</td>
</tr>
<tr>
<td></td>
<td>• understand how to complete a 1040 with itemized deductions and understand the difference between a tax credit and tax deduction.</td>
<td>MA.912.F.4.5</td>
<td>Married filing separately</td>
</tr>
</tbody>
</table>

### Make sense of problems and persevere in solving them.
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<tr>
<th>ESSENTIAL QUESTIONS:</th>
<th>Can the student interpret tax tables to calculate and complete yearly federal income tax 1040EZ or 1040A form given various circumstances?</th>
</tr>
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<td>Activities and Resources</td>
<td>Assessment</td>
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<td><strong>TI Activity Exchange &amp; APPS:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Internet Resources</strong></td>
<td>Assessment</td>
</tr>
</tbody>
</table>
**UNIT/ORGANIZING PRINCIPLE:** Mortgages  
**PACING:** 3rd quarter (13 days)

**ESSENTIAL QUESTIONS:** Can the student analyze the advantages and disadvantages of fixed rate, variable rate and balloon mortgages?  
Can the student determine the amount of mortgage that can be afforded on a certain budget?

<table>
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<tr>
<td><strong>Exponential Functions</strong></td>
<td>The student will:</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• compare the advantages and disadvantages of renting vs. buying a home by calculate the affordability of a monthly rent, monthly mortgage payments and total amount paid over life of loan.</td>
<td>MA.912.F.3.9</td>
<td>Tenant Evict Security deposit Market value Property tax Mortgage Fixed rate mortgage ARM Foreclose Front-end-ratio Back-end-ratio Debt to income Balloon mortgage Interest only mortgage</td>
</tr>
<tr>
<td></td>
<td>• compute the total cost for buying a house.</td>
<td>MA.912.F.3.9</td>
<td></td>
</tr>
<tr>
<td><strong>Linear Functions</strong></td>
<td>• estimate closing costs for buying a home.</td>
<td>MA.912.F.3.7</td>
<td></td>
</tr>
<tr>
<td><strong>Exponential Functions</strong></td>
<td>• create an amortization table for a fixed rate mortgage and calculate total amount paid for the life of the loan including down payments, points, fees, and interest.</td>
<td>MA.912.F.3.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• compare interest rate calculations and annual percentage rate calculations to distinguish between the two rates.</td>
<td>MA.912.F.3.17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• create and investigate the amortization table for a fixed rate, adjustable rate and balloon mortgage.</td>
<td>MA.912.F.3.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• investigate the amortization table for an ARM and calculate the effects on the monthly payment if the interest rate is changed with and without technology.</td>
<td>MA.912.F.3.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• calculate the final pay out amount for a balloon mortgage.</td>
<td>MA.912.F.3.11</td>
<td></td>
</tr>
<tr>
<td><strong>Interpret Data</strong></td>
<td>• compare the costs of paying a higher interest rate and lower points versus lower interest rate and higher points.</td>
<td>MA.912.F.3.12</td>
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**MACC.K12.MP.7**  
**MACC.K12.MP.8**  

**MACC.K12.MP.1**  
**MACC.K12.MP.2**  
**MACC.K12.MP.3**  
**MACC.K12.MP.4**  
**MACC.K12.MP.5**  
**MACC.K12.MP.6**  
**MACC.K12.MP.7**  
**MACC.K12.MP.8**
**ESSENTIAL QUESTIONS:**

Can the student analyze the advantages and disadvantages of fixed rate, variable rate and balloon mortgages?

Can the student determine the amount of mortgage that can be afforded on a certain budget?

<table>
<thead>
<tr>
<th>Activities and Resources</th>
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</thead>
</table>
| **Financial Algebra Text:**
  8.1 Find a place to Live
  8.3 Mortgage Application Process
  8.4 Purchase a Home
  8.5 Rentals, Condominiums, and Cooperatives | Links to Educational websites |
| **Foundations in Personal Finance:**
  Ch. 12 Real Estate and Mortgages. |  |
| **Practical Money Skills**
  • Lesson 5 Buying a Home |  |
| **Hands On Banking**
  • Topic 3 |  |
| **TI Activities:**
  • Loans and Mortgages
  • Amortizations Tables
  • Math TODAY-Homes Sales Records
  Interest and Annuities |  |
| **CPALMS:** [http://www.floridastandards.org/homepage/index.aspx](http://www.floridastandards.org/homepage/index.aspx) |  |
**UNIT/ORGANIZING PRINCIPLE:** Retirement Income  
**PACING:** 4th quarter (15 days)

**ESSENTIAL QUESTIONS:** Can the student understand the importance of diversifying their investments? Can the student explain the difference between pre-tax and post-tax investments and the benefits of each?

<table>
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<tr>
<th>MEASUREMENT TOPICS</th>
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<th>BENCHMARKS</th>
<th>ACADEMIC LANGUAGE</th>
</tr>
</thead>
</table>
| Exponential Functions | • solve real-life problems calculating future value of investments with and without technology.  
• solve real-life problems calculating the present value of investments with and without technology. | MA.912.F.2.1 | Pre-tax dollars  
Traditional IRA  
Roth IRA  
401K  
403b |
| Percent of Increase/Decrease | • solve real-life problems calculating an employer’s matching contribution to a retirement account. | MA.912.F.4.9 | Keogh plan  
Future value  
Present value  
Time value of money  
Pension  
Deferred compensation |
| Interpret data | • compare the different types of retirement investments including: 401K, IRA, Roth IRA, and annuities and calculate the pretax savings of investing in these accounts. | MA.912.F.4.9 | |
| Linear Function | • compute Federal Income tax on benefits that are paid under Social Security.  
• calculate pension benefits during and after vesting period.  
• analyze different diversification options in investments. | MA.912.F.4.9 | |

Make sense of problems and persevere in solving them.  
Reason abstractly and quantitatively.  
Construct viable arguments and critique the reasoning of others.  
Model with mathematics.  
Use appropriate tools strategically.  
Attend to precision.  
Look for and make use of structure.  
Look for and express regularity in repeated reasoning.

MACC.K12.MP.1  
MACC.K12.MP.2  
MACC.K12.MP.3  
MACC.K12.MP.4  
MACC.K12.MP.5  
MACC.K12.MP.6  
MACC.K12.MP.7  
MACC.K12.MP.8
**ESSENTIAL QUESTIONS:**
Can the student understand the importance of diversifying their investments?
Can the student explain the difference between pre-tax and post-tax investments and the benefits of each?

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</table>
| **Financial Algebra Text:**
3-7  Future Value of Investments
3-8 Present Value of Investments
9.1 Retirement Income from Savings
9.2 Social Security Benefits
9.3 Pensions | **Links to Educational websites**
- Text website: [www.cengage.com/school/math/financialalgebra](http://www.cengage.com/school/math/financialalgebra)
- Hands On Banking: [www.handsonbanking.com](http://www.handsonbanking.com)
- Practical Money skills [www.practicalmoneyskills.com](http://www.practicalmoneyskills.com)
- NEFE High school Financial Planning [www.hsfpp.nefe.org](http://www.hsfpp.nefe.org)
- TI Activities Exchange [http://education.ti.com](http://education.ti.com)

**Foundations in Personal Finance:**
Ch. 2 Investment Options
Ch. 3 Wealth Building

**CPALMS:** [http://www.floridastandards.org/homepage/index.aspx](http://www.floridastandards.org/homepage/index.aspx)

**Practical Money Skills**
- Lesson 12 Savings and Investing

**TI Activities:**
- Rule of 72
- Future Value of Ordinary Annuities
- Present Value of Ordinary Annuity
- Compound Interest
- Return on a Share of Stock
- Investing in Your future-Using a spreadsheet to make comparisons

**NEFE:**
Unit 3 Investing
## UNIT/ORGANIZING PRINCIPLE: Preparing a Budget/Cash Flow Plan

## PACING: 4th quarter (12 days)

### ESSENTIAL QUESTIONS:
Can student create a monthly cash flow plan (working budget) that includes Income and Expenses. Can the student create charts/graphs to compare the amount spent in the different expense categories budgeted?

### MEASUREMENT TOPICS
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Piecewise Functions</td>
<td>- compute and compare the following using linear equations:</td>
<td>MA.912.A.3.5</td>
<td>SMART Goals</td>
</tr>
<tr>
<td></td>
<td>- cost of electric, gas, oil, and water for the home, time it takes an energy-savings appliance to pay for itself, cost of electronic utilities such as internet, cell phones usage, text messaging and cable.</td>
<td></td>
<td>Electronic Utilities</td>
</tr>
<tr>
<td>Matrices</td>
<td>- create a budget using charts, graphs and budget check-off matrix.</td>
<td>MA.912.F.4.1</td>
<td>Budget Matrix</td>
</tr>
<tr>
<td>Interpret Data</td>
<td>- visualize and interpret a budget using circle graphs, bar graphs, and line graphs.</td>
<td>MA.912.S.3.1</td>
<td>Line graph</td>
</tr>
<tr>
<td>Linear functions</td>
<td>- calculate net worth of an individual.</td>
<td>MA.912.F.4.3</td>
<td>Bar graph</td>
</tr>
<tr>
<td>Percent Increase/Decrease</td>
<td>- develop a debt reduction plan.</td>
<td>MA.912.F.4.4</td>
<td>Budget line graph</td>
</tr>
</tbody>
</table>

### BENCHMARKS
- MA.912.A.3.5
- MA.912.F.4.1
- MA.912.S.3.1
- MA.912.F.4.3
- MA.912.F.4.4

### ACADEMIC LANGUAGE
- SMART Goals
- Electronic Utilities
- Budget Matrix
- Pie chart
- Line graph
- Bar graph
- Budget line graph
- Sector
- Central Angle

### MAKE SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM.
- MACC.K12.MP.1
- MACC.K12.MP.2
- MACC.K12.MP.3
- MACC.K12.MP.4
- MACC.K12.MP.5
- MACC.K12.MP.6
- MACC.K12.MP.7
- MACC.K12.MP.8

### REASON ABSTRACTLY AND QUANTITATIVELY.
- MACC.K12.MP.2

### CONSTRUCT VIABLE ARGUMENTS AND CRITIQUE THE REASONING OF OTHERS.
- MACC.K12.MP.3

### MODEL WITH MATHEMATICS.
- MACC.K12.MP.4

### USE Appropriate TOOLS STRATEGICALLY.
- MACC.K12.MP.5

### ATTEND TO PRECISION.
- MACC.K12.MP.6

### LOOK FOR AND MAKE USE OF STRUCTURE.
- MACC.K12.MP.7

### LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING.
**ESSENTIAL QUESTIONS** Can student create a monthly cash flow plan (working budget) that includes Income and Expenses. Can the student create charts/graphs to compare the amount spent in the different expense categories budgeted?

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<td><strong>Financial Algebra textbook</strong></td>
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<tr>
<td>10.1 Utility Expenses</td>
<td></td>
</tr>
<tr>
<td>10.2 Electronic Utilities</td>
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<tr>
<td>10.3 Charting a Budget</td>
<td></td>
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<tr>
<td>10.4 Cash Flow and Budgeting</td>
<td></td>
</tr>
<tr>
<td><strong>Foundations in Personal Finance:</strong></td>
<td></td>
</tr>
<tr>
<td>Ch. 7 – Budgeting 101</td>
<td></td>
</tr>
<tr>
<td>Ch. 8 - Bargain Shopping</td>
<td></td>
</tr>
<tr>
<td>Ch. 9 – Relating to Money</td>
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<tr>
<td><strong>Practical Money Skills</strong></td>
<td></td>
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<tr>
<td>• Lesson 1 Making Decisions</td>
<td></td>
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<tr>
<td>• Lesson 3 The Art of Budgeting</td>
<td></td>
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<tr>
<td>• Lesson 4 Living on Your Own</td>
<td></td>
</tr>
<tr>
<td><strong>TI Activities:</strong></td>
<td></td>
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<tr>
<td>• Assessing Personal Finance.</td>
<td></td>
</tr>
<tr>
<td>• Analyzing an Electricity Bill</td>
<td></td>
</tr>
<tr>
<td><strong>NEFE:</strong></td>
<td></td>
</tr>
<tr>
<td>• Unit 1 Your Financial Plan</td>
<td></td>
</tr>
<tr>
<td>Unit 2 Budgeting</td>
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<td><strong>CPALMS:</strong></td>
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- TI Activities Exchange [http://education.ti.com](http://education.ti.com)
  [www.daveramsey.com](http://www.daveramsey.com)
**UNIT/ORGANIZING PRINCIPLE:**    Modeling a business  

**PACING:**  4th quarter (15 days)  

**ESSENTIAL QUESTIONS:** Can the student analyze the costs and expenses in starting a company and figure the break-even point?  
Can the student generate and interpret graphs in order to maximize the profit of the business?  

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</thead>
</table>
| Regression Analysis       | • write the regression equation and make predictions for real life situations given a scatter plot of data.  
|                           | • write, graph, and interpret the expense function of real life business situations.  
|                           | • write, graph, and interpret the revenue function of real life business situations.  | MA.912.S.3.1             | Expense Function  
|                           |                                                                                        |                         | Revenue Function  
|                           |                                                                                        | MA.912.A.3.5             | Bivariate data  
|                           |                                                                                        |                         | Causal relationship  
|                           |                                                                                        | MA.912.A.2.1             | Explanatory variable  
|                           |                                                                                        |                         | Response variable  
|                           |                                                                                        |                         | Interpolation  
|                           |                                                                                        |                         | Extrapolation  

- Make sense of problems and persevere in solving them.  
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  - Construct viable arguments and critique the reasoning of others.  
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  - Use appropriate tools strategically.  
  - Attend to precision.  
  - Look for and make use of structure.  
  - Look for and express regularity in repeated reasoning.
Can the student analyze the costs and expenses in starting a company and figure the break-even point?

**QUESTIONS:** Can the student generate and interpret graphs in order to maximize the profit of the business?

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</tr>
<tr>
<td>2.1 Interpret Scatter plots</td>
<td></td>
</tr>
<tr>
<td>2.2 Linear Regression</td>
<td></td>
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<tr>
<td>2.3 Supply and Demand</td>
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<tr>
<td>2.4 Fixed and Variable Expenses</td>
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<tr>
<td>2.5 Graphs of Expense and Revenue Functions</td>
<td></td>
</tr>
<tr>
<td>2.6 Breakeven Analysis</td>
<td></td>
</tr>
<tr>
<td>2.7 the Profit Equation</td>
<td></td>
</tr>
<tr>
<td>2.8 Mathematically Modeling a Business</td>
<td></td>
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</tbody>
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**Links to Educational websites**

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**TI Activities Exchange**
- [http://education.ti.com](http://education.ti.com)
- [www.daveramsey.com](http://www.daveramsey.com)

**TI- Activities:**
- Break Even Analysis
- Maximizing Your Efforts
- Lets Go to the Furniture Market
- Assessing Revenue, Costs, and Maximum Profit
- Exploring Revenue and Cost
- Investigating Maximizing Profits
- Budgets, Spreadsheets & Functions